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JANUARY 1915

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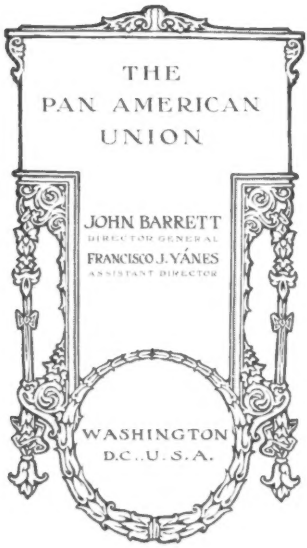

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SR. DON ALFREDO GONZÁLEZ FLORES,
President of the Republic of Costa Rica.

BULLETIN
OF THE PAN AMERICAN UNION

VOL. XL. JANUARY, 1915. No. 1

PAN AMERICAN SOCIETY LUNCHEON TO NEW AMBASSADORS.

THE luncheon which the Pan American Society of the United States had arranged in honor of Señor Don Eduardo Suarez-Mujica, the ambassador from Chile, and Señor Don Romulo S. Naon, the ambassador from the Argentine Republic, on January 6, 1915, and which was postponed until a later date on account of unexpected duties devolving upon the ambassadors requiring their presence in Washington on the date mentioned, will be given at India House, Hanover Square, New York, on Tuesday, February 9, at 12.30. The committee in charge include Dr. Nicholas Murray Butler, James A. Farrell, J. P. Grace, Ramon Guiteras, Archer M. Huntington, Harrison C. Lewis, James M. Motley, Charles M. Schwab, and Ernest Wands.

NEW MINISTER FROM THE DOMINICAN REPUBLIC.

The executive officers of the Pan American Union extend a cordial welcome to Señor Dr. Enrique Jiménez, the newly accredited envoy extraordinary and minister plenipotentiary of the Dominican Republic to the United States. By virtue of his diplomatic position, Minister Jiménez has become a member of the governing board of this organization, and it is extremely gratifying to note the interest he is showing in its work and activities. Elsewhere in this issue appear a portrait of the minister and the remarks he made on the occasion of presenting his credentials to President Wilson on January 5, 1915. In this connection it is fitting to say a word of farewell to Señor Dr. Eduardo R. Soler, the retiring minister. During his stay at Washington Dr. Soler made a very favorable impression and acquired a host of friends who wish him success and prosperity in his future activities.

BROWN UNIVERSITY HONORS LATIN AMERICAN DIPLOMATS.

At the recent celebration of the one hundred and fiftieth anniversary of the founding of Brown University, at Providence, R. I.,

honorary degrees were conferred upon two members of the governing board of the Pan American Union, Señor Dr. Romulo S. Naon, the ambassador from Argentina, and Señor Dr. Federico A. Pezet, the minister from Peru. Thirty-seven persons distinguished in the fields of statecraft, diplomacy, science, literature, medicine, law, religion, and philanthropy received the degrees which were conferred by Dr. William Herbert Perry Faunce, president of the university. It is interesting to note that among these were ex-President William Howard Taft, Prof. John Bassett Moore, and Andrew Carnegie.

BUREAUS OF INFORMATION OF HONDURAS.

The Pan American Union has been informed by Señor Dr. Alberto Membreño, the minister of Honduras, that five special bureaus of information have been established by his Government in the United States to furnish accurate and detailed information about Honduras. These bureaus are located with the legation at Washington, the consulates general at New Orleans, La., New York, N. Y., San Francisco, Cal., and the consulate at Mobile, Ala. This action has been taken by the Government of Honduras in response to the great interest which is being shown here in the progress of that country, and in particular in the opportunities it offers for profitable investments in the development of its resources.

ADDRESSES ON LATIN AMERICA.

As this issue of the BULLETIN goes to press John Barrett, Director General of the Pan American Union, is returning from a journey to the Pacific coast, which he made in order to keep a number of engagements to speak on the subject of Pan America and the development of closer relations between the United States and the other Republics composing the Union. Mr. Barrett left Washington about the middle of December, and made numerous stops both going and returning to fill these engagements. Incidental to the trip was a stop at San Diego, where he participated in the formal opening of the Panama-California Exposition. The keen interest which the west feels in the development of more intimate relations with the other Americas is evidenced by the many invitations the Director General has received from representative civic and commercial organizations to address them on this timely subject. Among the invitations possible for him to accept were those from the chambers of commerce of San Antonio, El Paso, and Dallas, in Texas; Los Angeles, San Diego, Pasadena, San Francisco, and Oakland, in California; Tacoma, Seattle, and Spokane, in Washington; and Denver, Colo. The fol-

STATUE TO AMUNÁTEGUI BROTHERS AT SANTIAGO, CHILE.

This monument was erected to the memory of the noted brother students, Don Gregorio Víctor and Don Miguel Luis. The former and younger was a jurist and patriot of prominence. He occupied a distinguished position as a lawyer and magistrate, and attained one of the highest honors of a judicial career—namely, member of the Supreme Court of Chile. Don Miguel Luis was a publicist and educator of recognized ability and one of the first citizens of Chile. He served in the cabinet of President Pérez in 1868 as minister of interior; was minister of public instruction under President Pinto in 1876; and minister of foreign affairs under President Balmaceda in 1888. Prior to his cabinet positions he served in the Chamber of Deputies and was also rector of the National University. Sincere, eloquent, he was a power and influence among men, and his death in 1888 was a severe public loss. The statue is one of the several that adorn the Alameda (Alameda de las Delicias) at Santiago and remind the passer-by of the heroes and scholars who have enriched the pages of Chilean history.

lowing editorial, which appeared in the January 5, 1915, issue of the Star, of Pasadena, Cal., is an evidence of the kindly spirit in which Mr. Barrett's efforts were received by his generous and hospitable hosts in the far west.

JOHN BARRETT IS MASTERLY IN KNOWLEDGE OF PAN AMERICA.

John Barrett, who has been an honored visitor in Pasadena, knows Pan America, its history and traditions, its problems and prospects, like a book. It is no exaggeration to term him the best-informed man in America on Pan American affairs. Having served this Nation very acceptably in diplomatic capacities in Republics to the south, Mr. Barrett has devoted the best years and most vigorous energies of his life and the finest faculties of his mind to the development of better relations among the American Republics. The future historian will acclaim him the pathfinder of the great Pan American Union that is sure to be effected and perfected.

Mr. Barrett has been striving to bring about an interweaving of the destinies of the nations of this western world that, consummated, will make this hemisphere one vast land with common thought, common purpose, common aspirations, and profound and sincere sympathies binding these nations together with the mystic cords of confidence and affection. Mr. Barrett has been and is engaged in rolling the barriers away, that this strong sentimental union of the Americas may be perfected. To Mr. Barrett the Nation is indebted, in large measure, for having its attention drawn to Latin America and the splendid commercial opportunities there, as well as the transcendent advantages to this country of having the full confidence, faith, and good will of the Republics to the southward.

OPENING OF THE PANAMA-CALIFORNIA EXPOSITION AT SAN DIEGO, CAL.

On new year's eve an expectant crowd of over 40,000 people gathered in the exposition grounds of the Panama-California Exposition at San Diego, Cal., to await the signal which was to proclaim the formal opening of the enterprise. Just as the new year was born the President of the United States touched an electric button in the White House at Washington, some 3,000 miles away, thereby setting off hundreds of flashing skyrockets which announced to the people of San Diego and its environs for miles around that their cherished exposition was an accomplished fact. Brilliant fireworks and patriotic music entertained the enthusiastic multitude assembled until daybreak. During the morning of January 1 the formal dedicatory exercises were held. Among those participating were Hon. William G. McAdoo, Secretary of the Treasury, as the personal representative of President Wilson; Count del Valle de Salazar, representing the King of Spain; Director General John Barrett, of the Pan American Union, who, it will be recalled, as the personal representative of President Taft, broke ground for the exposition in 1911; Col. D. C. Collier, former president of the exposition; President G. Aubrey Davidson, of the exposition; Gov. Hiram Johnson, of California; and Hon. Lyman J. Gage, formerly Secretary of the Treasury, who presided at the exercises. An article in the February number of the

BULLETIN will deal with some of the details of the exposition, which, in addition to being an architectural triumph, embodies many unique features.

THE STUDY OF ENGLISH AND SPANISH.

The increased attention which in the United States is paid to the study of Spanish finds a most gratifying counterpart in the corresponding growth of interest in the English language throughout the coun-

GOLD MEDAL AWARDED TO DR. RÓMULO S. NAON, AMBASSADOR OF ARGENTINA, BY THE PENNSYLVANIA SOCIETY.

The medal was presented to Ambassador Naón at the sixteenth annual dinner of this society in New York City, December 12, 1914, as described in the December issue of the BULLETIN. Nearly 1,000 guests were present on this occasion. As special courtesies to the guest of honor the orchestra played the Argentine national hymn when the diners entered the hall, while the flag of that country was carried immediately before the ambassador, who was escorted by a special committee. Above the guest table and on the menu cards the coat of arms of Argentina appeared conspicuously.

tries of Latin America. This reciprocal appreciation of the importance of the language factor in international relations is viewed with much satisfaction by those interested in the development of closer relations among the Americas. An evidence of the stimulus that the study of English has received is contained in a letter from Colombia stating that in the National School of Languages (Centro de Idiomas) of Bogotá, of which Señor Don T. Leal Cuenca is the director, over 80 per cent of the students, both male and female, are enrolled in the English classes. In the United States, besides schools and colleges, various clubs and organizations are encouraging the study of Spanish. In Boston, for example, there has been formed El Club Sarmiento,

Photo by Harris-Ewing.

SEÑOR DR. ENRIQUE JIMÉNEZ,

Envoy Extraordinary and Minister Plenipotentiary of the Dominican Republic at Washington, D. C.

under Y. M. C. A. auspices, for the purpose of developing "ability in Spanish conversation to the end that members may be enabled to take their place in the movement for increased business with our South American neighbors." In Washington, D. C., the Builders' Association is maintaining special classes for the study of Spanish, and already the demand for admission to these classes is in excess of the accommodations.

SPECIAL AGENT DEPARTMENT OF COMMERCE.

Mr. William H. Lough has been appointed a special agent of the United States Department of Commerce for the purpose of studying the subject of the extension of foreign credits and the financing of foreign trade. The BULLETIN is informed that Mr. Lough is giving especial attention to the South American situation. In this connection it is gratifying to note that the Department of Commerce is lending every effort in its power to promote and encourage commercial relations between the United States and the countries of Latin America, and its efficient work is proving of great value to the commercial and industrial interests of all the Americas.

ENCOURAGING THE STUDY OF SPANISH AT CORNELL UNIVERSITY.

Through the generosity of Mr. James Gilbert White, an alumnus of Cornell University, three prizes, each of the value of $100, are offered annually at that institution to English-speaking students for proficiency in Spanish and to Spanish-speaking students for proficiency in English. The prizes are awarded under the following conditions:

1. Two prizes shall be awarded for excellence in Spanish to undergraduate students who, being residents or citizens of the United States, shall not have permanently resided in any Spanish-speaking country, although they may have temporarily studied or lived there. One of these two prizes shall be open to members of the junior or sophomore class in the engineering colleges, who are candidates for their first degree. The other shall be open to members of the junior or sophomore class in the other colleges of the university.

2. The third prize shall be awarded for excellence in English to undergraduates from the Latin American Republics * * * who shall not have been permanently resident in any English-speaking country, although they may have temporarily studied or lived there.

3. All three prizes shall be awarded mainly on the basis of linguistic attainments, in determining which a general knowledge of the language, including its grammar and literature, shall count one-half, and ability to speak the language fluently and correctly shall count one-half.

Other conditions are that no candidate shall be eligible unless he shall have completed successfully two terms of work, in the prescribed language, at Cornell University; that account shall be taken of the general merit and character of the candidates as students and citizens.

FOREIGN TRADE CONVENTION.

At the Second National Foreign Trade Convention held in St. Louis, Mo., January 21 and 22, 1915, which was attended by prominent and active business men representing commercial and industrial organizations, manufacturers, bankers, merchants, and others interested in the expansion of foreign trade, there was a strong effort to bring about cooperation of all interests in the development of a national business policy which would systematize and increase the foreign trade of all concerned. There were present at the convention 300 delegates from all sections of the United States and many from foreign lands. Addresses were made by the mayor of St. Louis, the Secretary of the United States Department of Commerce, former Gov. Francis of Missouri, the president of the United States Steel Corporation, and officials of other great industrial establishments. The papers read dealt with foreign-trade opportunities in all the great markets, as with the fundamental problems of international business, and there was a general discussion of the papers by representatives present who were recognized authorities on the various subjects treated. A banquet was given, at which many of the prominent business men of the country were present. The Pan American Union had one of its representatives present, and also provided a large exhibit of literature dealing with the countries of Latin America, which was distributed free, and was eagerly sought by a large number of delegates.

A PAN AMERICAN COIN.

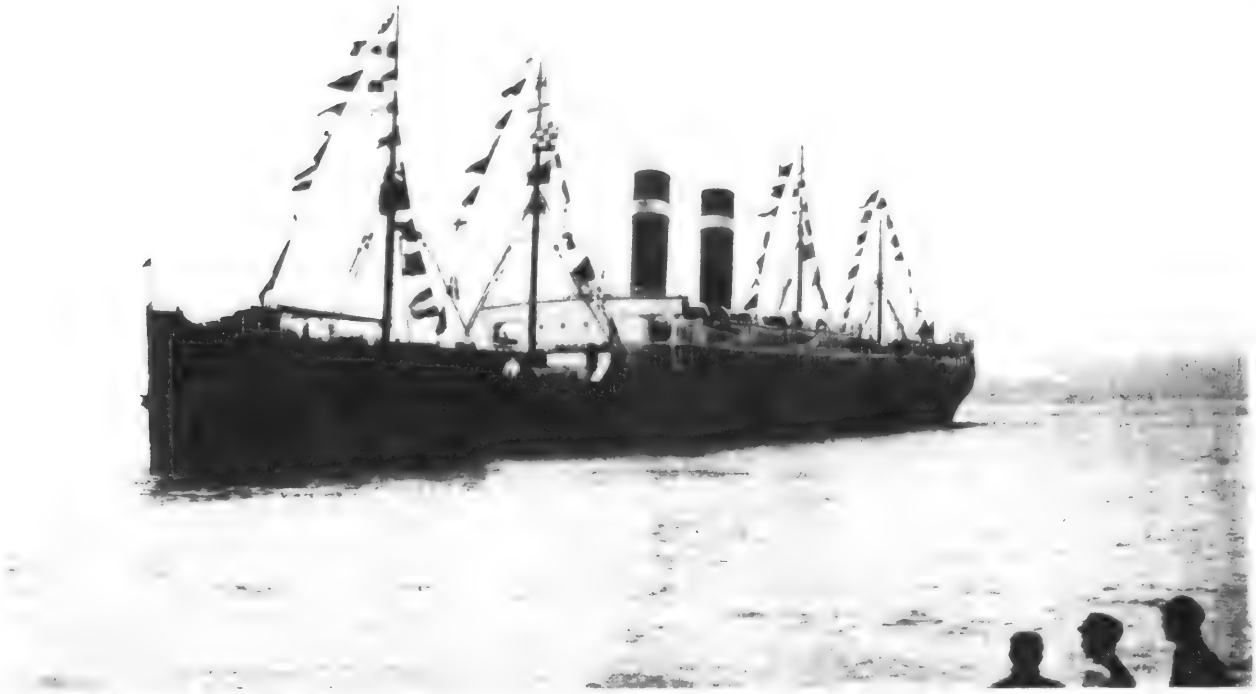
An interesting suggestion has been advanced by Hon. Horace G. Knowles, former minister of the United States to Bolivia, for the coinage of a souvenir five-dollar gold piece in connection with the opening of the Panama-Pacific Exposition, with a view to the popularization of the dollar in the trade relations of the American countries. According to the statement in the December number of The Americas, published by the National City Bank of New York, it is proposed to so design the coin that the republics of Latin America "may later be prevailed upon to adopt it among their own national coins, and thus establish a form of money that will ultimately pass current anywhere in the Western Hemisphere." The central feature of the design as tentatively outlined consists of two heads typifying the North and South American Continents, the forceful Inca head representing the earliest government in the Western World, and the head of Columbia symbolic of a republican form of government, the most modern of this hemisphere.

PRIZE FOR ESSAY ON "INTERNATIONAL ARBITRATION."

Perhaps at no time in the world's history has the attention of so many men been directed to the prosecution of war, and no less true is it that at no time have the thoughts of so many been forcibly directed toward its avoidance. The European war involves not only the active participants, of themselves more numerous than those of of any war known to history, but the entire civilized world as well. Never before have the economic relations between the nations of the world been so intimate and interwoven, and never before has the fact of their interdependence been so forcibly demonstrated. While the direct suffering incident to the war is being borne by the millions of Europe, the indirect effects of the economic disturbance of the world growing out of the war are being keenly felt by the millions of the other continents. The movement for the promotion of international arbitration, hitherto of a more or less altruistic character, will now have as its chief impelling force that strongest of all agencies to bring about effective action—self-interest. Once convince a man that war is detrimental to his personal interests; that, in addition to retarding civilization and causing inconceivable suffering to millions of his fellow beings, it will hurt his own business, or lower his wages, or throw him out of employment, you make of him an ardent advocate of peace and the principles of arbitration. Where six months ago there were hundreds thinking of international arbitration in a mild, impersonal sort of way, to-day there are thousands who are giving earnest consideration to the subject and are willing to lend their personal aid to bring about the adoption of its principles throughout the world. The subject is more alive to-day than it has ever been, the necessity for a world-wide propaganda more patent than ever before, and every agency should be employed to bring about a serious study of this great problem of avoiding armed conflict between human beings. In this connection may be mentioned the laudable efforts of the Lake Mohonk Conference. In order to stimulate the interest of the younger student element of this country the conference offers a prize of $100 for the best essay on "International Arbitration" by an undergraduate student of any college or university in the United States or Canada. The contest is to close March 15, 1915, and the details may be had from Mr. H. C. Phillips, secretary Lake Mohonk Conference, 3531 Fourteenth Street, NW., Washington, D. C.

ANNUAL MEETING OF THE UNITED STATES CHAMBER OF COMMERCE.

The third annual meeting of the Chamber of Commerce of the United States of America will be held at the New Willard Hotel, Washington, D. C., February 3–5, 1915. A special business session has been set aside for the address by President Wilson, who, it is



Courtesy of International Mercantile Marine Co.

STEAMSHIP "KROONLAND" LEAVING NEW YORK, JANUARY 21, 1915, ON AN 18,000-MILE CRUISE AROUND SOUTH AMERICA.

With nearly 250 passengers, representing every section of the United States, the Gates South American cruise sailed from New York Thursday, January 21, 1915, on the steamship *Kroonland*, flying the Stars and Stripes. Though the party left in a snowstorm, it will find a pleasant contrast in the warm and sunny climes of the West Indies, the first stops on the itinerary of 18,000 miles through the Panama Canal and around South America. The party will return to New York about April 13, 1915.

assumed, is taking this opportunity to go to the business men of the country because he has a message for them. Three members of the cabinet will also speak at the various sessions. Secretary of State Hon. William J. Bryan will discuss American investments abroad and their concomitant problems as viewed by his department of the Government. Secretary of the Treasury Hon. William G. McAdoo will speak on the pending merchant shipping bill. Senator Burton, from Ohio, will also discuss this subject. Secretary of Commerce Hon. William C. Redfield will speak at the banquet on the development of foreign commerce. A number of other prominent men representing big business interests and official departments will address the sessions of the congress. Commercial leaders are looking forward to this meeting as the greatest and most significant gathering of business men during the year, and already there are indications of a record-breaking attendance.

SOUTH AMERICAN CRUISE OF THE "KROONLAND."

On January 21, 1915, the Gates South American cruise sailed from New York on the Red Star steamship *Kroonland*, flying the Stars and Stripes, bound for an 82-day journey to the West Indies through the Panama Canal, down the west coast of South America, and returning via the Strait of Magellan, up the east coast of South America to New York about the middle of April, 1915. In all it is planned to cover 18,000 miles. Although a heavy snow was falling on the day of sailing this fact did not at all chill the enthusiasm of the 250 tourists who were bound for warmer and sunnier climes of the southern continent. Every section of the United States, from Seattle, Wash., on the Pacific coast, to New York on the Atlantic seaboard, from northern Maine to the tip of Florida, was represented in this cruising party. The passengers came from 32 States, including Canada, and the number from each State ranged from a solitary representative to 31. New York had 31 in the party; Ohio followed with 30; Illinois contributed 22; Pennsylvania and Massachusetts tied for next place with 21 each; and Minnesota ranked next with 14. Such a wide geographical distribution is especially noteworthy, indicating, as it does, the widespread interest throughout the United States in the countries to the south. The large number of women accompanying the party speaks well for the comforts of travel between the two Americas, and is evidence of the growing popularity of these regions for the traveler seeking new fields and pleasant experiences. The cruising party is in charge of Charles H. Gates, assisted by Arno R. Honberger, Edward C. Dixon, Cyril O. Assmus, Paul G. L. Hilken, Eli Aylesworth, H. L. Mead (representing the Red Star Line), and Mrs. M. Landon Reed, social directress. The ship's officers are

Thomas G. Barman, commander; I. Dubois and Robert R. Matthews, pursers; F. Wulffaert and William Stomp, surgeons; and J. Van Damme, chief steward. The itinerary, as nearly as it can be determined in advance, is as follows:

Arrive at Habana January 25, leave January 26; arrive at Kingston January 29, leave January 30; arrive at Colon February 1, pass through canal to Panama City, and leave February 2; arrive at Callao (for Lima) February 7, leave February 8; arrive at Mollendo (for Arequipa) February 10, leave February 13; arrive at Arica February 14, leave February 15; arrive at Antofagasta February 16, leave February 16; arrive at Valparaiso (for Santiago) February 18, leave February 20; pass through Straits of Magellan February 24 and arrive at Punta Arenas February 25, leave February 26; arrive at Buenos Aires March 3, trip to Montevideo, and leave March 10; arrive at Santos (for Sao Paulo) March 13, leave March 14; arrive at Rio de Janeiro March 15, leave March 20; arrive at Bahia March 23, leave March 23; arrive at Pernambuco March 25, leave March 25; arrive at Para March 29, leave March 30; arrive at Port of Spain April 3, trip to Brighton, and leave April 4; arrive at St. Pierre April 5, leave April 5; arrive at St. Thomas April 6, leave April 6; arrive at San Juan April 7, leave April 8; arrive at New York April 13.

MEETING OF THE AMERICAN RED CROSS.

At the tenth annual meeting of the American Red Cross held recently in Washington, President Wilson, the presiding officer, called attention to the fact that "it is now the medium of the whole world in ministering to those who need its aid under the present distressing circumstances." While the Red Cross can not, according to its charter, work for noncombatants in the belligerent countries, it can act as an intermediary by transmitting to the organizations best fitted to administer noncombatant relief any funds given for that purpose. It has been instrumental in having forwarded thousands of letters from prisoners of war in all the warring nations to their families, and has in this way relieved the anxiety of relatives and friends of the prisoners. Outside of the war work, the Red Cross commission for flood relief in China reported that its engineers had submitted plans to the Chinese Government which should entirely prevent future floods and the terrible famines resulting therefrom, and that the actual work to accomplish this would shortly be begun. The sale of the Christmas stamps by the Red Cross resulted in nearly $2,000,000 to be applied in its tuberculosis work.

THE "FOOD FOR THE GODS"[1]

IN every civilized country of the world the dark brown cake of commercial chocolate is known, and wherever candies and confections delight the appetite for sweets shared by the children of all nations the chocolate-coated bonbon is a favorite. Chocolate has become both food and drink in many lands, but of the millions who now use it comparatively few know that it is made from a bean which grows on a beautiful tropical tree. Still it is quite an old story, this drinking of chocolate, cocoa, or cacao—you may take your choice as to name, for the substance is the same. Columbus is said to have introduced the delightful beverage into Europe, for cacao is indigenous to the tropical regions of the Americas, and prior to the discovery of the Western World it was elsewhere unknown. *Chocolatl*, as it was called by the Aztecs, formed the favorite beverage of the luxurious Montezuma and his household; at least so Prescott tells us in the following words:

> The emperor took no other beverage than the chocolatl, a potation of chocolate flavored with vanilla and other spices, and so prepared as to be reduced to a froth of the consistency of honey, which gradually dissolved in the mouth. This beverage, if so it could be called, was served in golden goblets, with spoons of the same metal or of tortoise shell finely wrought. The emperor was exceedingly fond of it, to judge from the quantity—no less than 50 jars or pitchers being prepared for his own daily consumption. Two thousand more were allowed for that of his household.

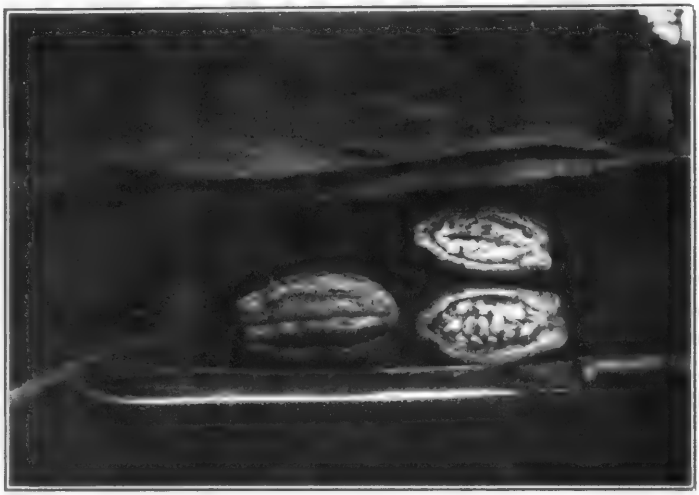
Fifty jars "for his own daily consumption" would indicate something of an abnormal appetite for even a Montezuma, but Prescott's authority was Bernal Diaz, that bold soldier-historian who accompanied Cortez, and besides, whatever we may think as to the accuracy of the statement as to quantity, the point is that the monarch of the Aztecs ate, or drank, chocolate. So did the Incas of Peru, for Pizarro and his followers saw "hillsides covered with the yellow maize and the potato, or checkered with the blooming plantations of cacao in the lower levels." And just how long cacao had been used for eating and drinking purposes by the Incas, who, by the way, traced an unbroken line of kings back for 1,000 years before the coming of the Spaniards, tradition saith not. Nor do we know when the Aztecs of Mexico were first introduced to its charms. All of which goes to show, as was suggested above, that it is an old story at least in the New World, and not so very new even in the Old—for it has been over 400 years since the Spanish adventurers brought it back with them to Spain, whence its use spread, somewhat slowly but surely, throughout the rest of Europe.

[1] By Edward Albes, Pan American Union staff.

Courtesy of La Hacienda.

A CACAO TREE PRUNED TO TAKE RECTANGULAR LINES.

Depending upon the character of the soil and climate, the cacao tree may be pruned in various shapes. If everything is suitable, there is an advantage in low branching, but in some cases such exposure is harmful.



CACAO PODS AND MACHETE.

In "shelling" the beans the machete, a long sharp knife, is the instrument in general use for cutting open the pods.

But to return to the tree which produces it. As stated, it flourishes in tropical America and also in other tropical sections of the world into which it has been introduced. Of the countries which produce it the leading ones are Ecuador, Brazil, Trinidad, Dominican Republic, Venezuela, São Thome, and British West Africa, both in quantity and in quality. Of the nine known species of the tree the *Theobroma cacao* and *Theobroma pentagona* are the only ones that bear fruit of commercial value, the first being the most plentiful and most important. The name *Theobroma cacao*, by the way, was given it by that greatest of all botanists, Linnaeus, in appreciation of the delectable qualities of the fruit, and means "food for the gods."

The tree usually grows to a height of 16 or 18 feet when cultivated, but in its wild state often exceeds that height. The leaves are large, smooth, and glossy, eliptic-oblong and accuminate in form. The flowers are small and grow in clusters on the main branches and often directly from the trunk itself. Only one fruit results from each cluster of flowers. This fruit when ripe is a pod shaped like a cucumber, is from 7 to 10 inches long and 3 to 4 inches in diameter, and has a thick, leathery rind varying in color from yellow to red and purple, and marked by 10 longitudinal lines or ridges with grooves between. The interior of the pod is divided into five long cells in each of which is a row of from 5 to 10 seeds embedded in a soft, pinkish acid pulp which is edible. These seeds are of the size and appearance of thick almonds and are the cacao beans of commerce.

The range of latitude in which cacao trees grow successfully is about from 20° north to 20° south, and in areas which are from 100 to 2,000 feet above the sea level. They require a moist atmosphere, a temperature ranging from 70° F. to 90° F., and a firm, deep soil, while a certain amount of shade and good drainage are also necessary. Frequently banana or rubber trees are planted on the same plantation with the cacao trees and furnish the required protection from sun and wind in addition to furnishing their own valuable products. On the larger plantations the cacao trees are planted from 12 to 18 feet apart, depending upon the character of the soil, allowing from 300 to 200 trees to the acre.

Trees raised from the seed generally begin bearing in 5 or 6 years, come to full maturity in 10, and if properly cared for will continue to bear for 40 or 50 years longer. Since this article is intended for the general reader and not for cacao growers, details as to fertilization, grafting, pruning, diseases of the tree, etc., will be omitted and the somewhat more interesting features of the gathering of the crop, its preparation for the market, and its final transformation into the brown cake of chocolate will be briefly outlined.

The picking on the large plantations generally takes place twice a year, although there are no regular seasons—the trees frequently

ON A CACAO PLANTATION.

The laborers are here engaged in "breaking" or "shelling" the beans, preparatory to drying them, as described in the text.

having buds, flowers, and fully ripened pods on them at the same time. The pods, which grow directly out of the trunk as well as from the limbs, are cut off with a machete—a long, sharp knife—when low enough to be thus reached, the higher ones being severed by means of a specially designed instrument known as a cacao picker —a sharp V-shaped blade attached to a long pole. These pickers are so constructed that each pod may be cut from the tree by skilled workmen without damaging either the other pods or the limbs of the tree. The severed pods are then gathered in heaps and usually left lying on the ground for a day or two before being opened and the beans extracted, an operation which is known as shelling or breaking. This is done by making a cut around the middle of the pod with a sharp knife, but not deep enough to injure the beans. The pod is then broken along the line of the cut by a sharp jerk and the beans taken out by hand. After the acid juice and pulp have been removed the beans are assorted according to size and state of ripeness and then taken to the "sweating boxes."

These sweating boxes are really fermenting bins, and play an important part in the curing of the beans, which is quite a delicate operation and requires expert knowledge. The curing consists first of fermenting and then the drying of the beans. The object of fermentation is to remove the sugary pulp still adhering to the beans, to promote chemical changes in the kernels, to convert the bitter, astringent quality into a sweet taste, and to improve the color and flavor generally.

The sweating boxes are made of wood, are cubic in form, and from 3 to 4 feet each way in size. They are built of stout planks and provided with a grating at the base through which the liquid products of fermentation can pass away. The beans are placed in these receptacles and the temperature not allowed to exceed 120° F. They are thoroughly stirred from time to time so that the outside beans are brought to the center, and vice versa, in order to insure equal heating. The time for the fermenting process varies according to the size and character of the bean from two to eight days.

After they have been thus fermented the beans are removed from the bins and dried, either by the natural agency of the sun or by the mechanical means of hot-air blasts. This drying process gradually changes the beans into the article of commerce. The surface of the beans is now of a bright reddish-brown color, the kernel having a darker or chocolate color internally, and the bean itself being quite friable and easily broken into smooth and even bits. It is in this state that they are sold to the exporters, who usually store them in large warehouses preparatory to sacking them for shipment to the United States or European countries.

Photo by Underwood & Underwood.

CURING CACAO BEANS.

After the acid juice and pulp have been removed from the shelled beans they are assorted according to size and state of ripeness and then taken to the "sweating boxes." These are provided with a grating at the bottom through which the liquid products of fermentation pass away. The beans are placed in these receptacles and allowed to ferment for several days, and then taken out and thoroughly dried.

The ordinary method of drying cacao is by means of the heat of the sun striking upon wooden floors. Where a large extent of cacao is under cultivation, say where 500 or more bags are produced per annum, it is not advisable to depend entirely upon sun heat for drying and curing the product, so the large producers generally use the hot-blast method. The greater portion, however, is sun-dried in the producing countries by apparatus of various forms, the most common being the level wooden floor with movable roof to protect the drying beans in case of rain.

The first thing an operator attends to when starting to dry a batch of cacao is to see that his floors are thoroughly dry, and to insure this they are usually exposed to the hot sun for some days before the wet cacao is placed upon them. The next step is to remove the wet cacao beans from the "sweat boxes" and place them upon the drying floor, opportunity being taken to get the picking or cleaning of the beans completed as soon as possible by assembling all available hands for this purpose. Cleaning consists in removing all diseased or immature beans, the removal of the placentas to which the beans are attached when inside the pod, and the removal of pieces of pods or other refuse gathered in transit from the fields.

The drying hands now cover the floor with a layer of the wet beans between 3 and 4 inches deep, this thickness being necessary in dry weather to prevent too rapid drying; in wet weather a thinner layer is used. The duties of the drying staff during the first two days is to turn the cacao lying upon the floor evenly and frequently, so that all the beans may have the same amount of exposure. This is effected by the men walking barefooted in straight lines from end to end, using their feet alternately to throw the cacao into small ridges between their two feet, each man taking half of the previously made ridge, right and left, to form the new ridge he leaves. When this operation is well done it is very effective, and every bean gets an equal amount of exposure. Perfect cleanliness is maintained by the managers, and the feet of the men are frequently washed. There is, however, no contact whatever between the part of the bean consumed and the feet of the laborers, as the whole skin of the bean comes off in the roasting process which it undergoes previous to being made into any of the forms to which manufacturers devote it.

Next comes the operation commonly known as "dancing." The cacao is shoveled together into heaps of about two barrels each at suitable distances from each other, and workmen of light build are chosen for dancing, who usually weigh not more than 112 to 130 pounds. These men tread or dance on the top of the heap barefooted as before, while women and children sitting around the base throw up the beans as fast as they are thrown down by the dancer. As the operation proceeds the appearance of the beans must be care-

DRYING CACAO.

After fermentation in the sweating boxes the beans are dried by either the natural agency of the sun or by the mechanical means of hot-air blasts. The picture shows the beans being dried by means of sunlight in the open street. In order that all the beans may receive an equal share of the heat the piles are thoroughly stirred at regular intervals by the cacao workers.

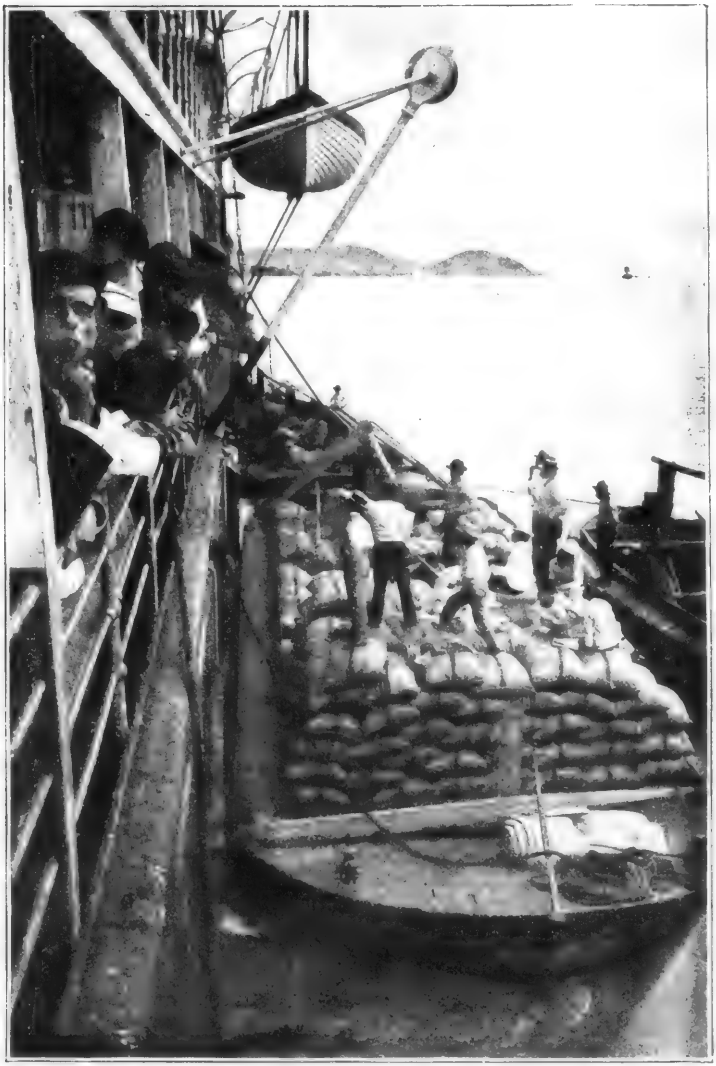


Photo by Underwood & Underwood.

LOADING CACAO AT GUAYAQUIL, ECUADOR.

The cultivation of cacao is one of the principal industries of Ecuador. In 1913 that country led in the American production with a total of nearly 40,000 long tons. During the first five months of 1914 its production amounted to over 25,000 tons.

fully watched, until they are seen to assume a surface like that of a piece of polished mahogany. The heap is then opened out and the drying allowed to proceed as rapidly as possible. The following day the heaps are again danced, opened out thinly on the floors, and allowed four or five hours of continuous sun heat, which, by rapidly drying the exterior and interior, tends to fix the polish upon the skin of the bean.

As to the method of manufacturing chocolate from the cacao beans in the countries of their origin that which usually obtains is as follows: The first process is to roast the beans in a cylinder over a slow fire, until they assume a fine brown color, but not to heat them to such a degree as to burn them, or to destroy the essential oil which they contain. Cacao beans once burnt or scorched can never make a cup of first-class chocolate. When browned sufficiently, the testa, or skin, easily separates from the inner portion of the seed, and can be cracked off and fanned away as soon as the beans are cool enough to handle. The beans must be ground quickly after roasting, otherwise the cacao soon loses its flavor and aroma. The grinding is done by placing the "nibs"—as the beans are called after being roasted—upon a clean piece of freestone about 2 feet square, perfectly smooth, and another stone, somewhat rounded, is used as a grinder. The beans are thus mashed and rubbed until they are reduced to a paste, the fat they contain assisting the operation, and the grinding being continued until the paste becomes perfectly smooth and even. If sweet chocolate is desired, sugar is added and ground up with the paste. If unsweetened is wanted, nothing further is to be done except to make up the paste into the form and size desired, generally in small blocks, rolls, or balls. These are then allowed to set or harden, which they do in a few hours time in dry weather, and the product is then ready to be used. Occasionally some flavoring, such as vanilla, nutmeg, cinnamon, or other spices are added, but to the real lover of chocolate nothing equals the flavor of virgin cacao when properly prepared, and other added substances are merely adulterations.

Of course the primitive method of manufacture described above is not practiced in the great factories to be found in the United States and Europe. But in all the processes used, however complicated and costly the machinery may be, the principles are just the same. Upon their arrival at the factory the beans are usually blended to get the best results, they are roasted, crushed, ground to the fineness of flour, and by this reduction process become a thick, viscous liquid, owing to the presence in the beans of the fat, or "cocoa butter" as it is usually called. Up to this point all products of cacao are about the same. But if the product we know as "cocoa" is desired, this paste is placed between sheets of fine cloth and then put into presses and the fat or "butter" expressed from the mass. After the butter

is thus extracted the cacao can be dried and reduced to a powdered form. In other words, chocolate is cacao with the fat left in, while cocoa is cacao with the fat extracted. Both preparations have stimulating and nutritive qualities. The stimulating quality is due to the presence of the alkaloid called theobromin, almost the same as caffein, the active principle of coffee. The nutritive value, which makes a food as well as a drink of chocolate, is due to the oils and vegetable ingredients of the cacao bean. In a cup of chocolate made from the pure product all the nutritive factors are retained.

Some idea of the popularity of chocolate as a food and drink may be had when recent statistics show that the world's consumption of cacao during the year 1913 amounted to 251,582 long tons. During the first five months of 1914 the total consumption amounted to 134,549 long tons, being 17,150 tons more than that consumed in the corresponding period of 1913. In the production for 1913, in American countries, Ecuador ranked first with nearly 40,000 tons, Brazil second with nearly 30,000, Trinidad third with nearly 22,000, and Venezuela fourth with over 15,000 tons. In point of consumption the United States ranked first, Germany second, Holland third, France fourth, and England fifth.

Courtesy of Sunset Magazine.

OIL WELLS AT SUMMERLAND, NEAR SANTA BARBARA, CALIFORNIA.

A most interesting section where oil is found along the seashore as well as far out in the bay. Here the wells are so thick that the old method of pumping each well separately has passed; at present the economic and scientific basis is to pump the wells in groups by a network of connecting pipes driven by an engine at a centralized plant. In the enormous petroleum output for 1914 the wells of California and Oklahoma supplied about 70 per cent of the production of the United States.

PETROLEUM IN THE AMERICAS[1]

NATURE seems to be endeavoring to keep pace with the necessities of man by yielding annually larger quantities of certain crude products. Petroleum in one form or another now enters extensively into the economic development of practically all nations, and it is fortunate indeed that mother earth continues to meet the demand. Never before has man consumed such vast quantities of petroleum; never before have things made from it been so numerous; and never has the output been so abundant.

In the United States the increase in petroleum production during the year just closed was 13 per cent over the previous record-breaking year, when the country's output reached 248,446,230 barrels, of 42 gallons each. The year 1914, however, surpasses all others, and the total yield is announced at 292,000,000 barrels.

It is difficult or even impossible to conceive of such a vast quantity of oil. Assuming that each barrel is approximately 3 feet long, and that such a thing as placing them end to end were possible, we would have more than enough to extend six times around the earth at the Equator—and this vast array the production of only one country.

Ever since the time of Pharaoh men have sought from the bowels of the earth the strange substances known to-day as gas, petroleum, and asphaltum—all more or less related. In the early days the three products were grouped under the name of bitumen, and historians tell us that strange caravans transported it from the Dead Sea to workmen on the monuments in Egypt; and the "slime" that cemented the Tower of Babel is believed to have been closely akin to the substance we use at present on our streets and highways, which we call asphalt. Whatever it may be termed, it is a well-known fact that the countries lying north of the Equator have heretofore supplied the world with its largest quantities, whether it be in the form of gas, petroleum, or asphalt. To-day investigations and production in various countries south of the Equator are showing surprising results, and ere long larger quantities of petroleum and its products will come from that section of the world.

The petroleum wells of southern Argentina, notably those at Comodoro Rivadavia, have been producing large quantities of oil; and recent investigations by Dr. Guido Bonarelli, a well-known Gov-

[1] By William A. Reid, Pan American Union staff.

Courtesy of Sunset Magazine

LAKEVIEW GUSHER, SAN JOAQUIN VALLEY, CALIFORNIA.

This is one of the wonderful oil wells of the world. In two and a half months it produced 3,500,000 barrels of oil and its flow had increased to 60,000 barrels a day. The total shipments from the California fields for the month of November, 1914, were 6,746,952 barrels of 42 gallons each.

ernment geologist, show very clearly that north Argentina also has latent possibilities of oil production on a large scale. These oil veins are shown by data collected and by maps prepared by the authority above cited, and indicate a vast oil section extending northward from Tucuman along the San Francisco River to Oran and beyond. Other scientists, English and American, who carried investigations farther northward through Bolivia, confirm in general terms a continuation of oil-bearing strata. Indeed, the reports say that it is believed the petroleum zone extends through Bolivia, Brazil and possibly all the way to the Orinoco. We quote from one of the reports:

> The geological formation is such as to lead to the belief that this is the largest known oil field in the world. * * * The dips and strikes generally show considerable uniformity, and indicate that the oil strata is probably from 400 to 500 meters (1,300 to 1,600 feet) deep and in great abundance. The connection is along the Oran-Ledesma branch of the North Central Argentine Railway, whose rail head is at present at Embarcacion, and will eventually reach Yacuiba, on the Bolivian frontier. * * * Four boring machines have been sent to Manduiti, and 60,000 hectares (about 148,200 acres) of oil-bearing lands have been acquired in the Province of Azero, Bolivia.

The oil fields of Mexico, Argentina, and Peru have been producing large quantities of petroleum for years; but recent international developments have caused a more active interest in the petroleum output, inasmuch as coal and its delivery have become questions of considerable uncertainty. Oil has, therefore, to some extent replaced other fuel in numerous industries, especially on railways and steamships.

Tests were recently conducted near Buenos Aires on a 250-horsepower locomotive to ascertain the relative merits of the two fuels. In eight hours there were consumed 1,650 pounds of petroleum as against 2,430 pounds of coal. The latter delivered in Buenos Aires in normal times from Cardiff costs approximately $8 to $8.50 a ton, the price having been practically doubled during the last 20 years. At the price named the economy of oil over coal is variously estimated to be from 20 to 30 per cent; and in view of these facts the port and railway officials at Buenos Aires have extensively adopted oil for fuel purposes.

The companies in various sections of the world that have heretofore supplied Argentina's importations of about 4,000,000 tons of coal annually, must therefore consider the new factor that now enters more extensively into the economic development throughout the Republic. Argentina has no coal, but her oil wells are pouring out a stronger and ever increasing stream of petroleum, which is growing in general use. The Buenos Aires Great Southern Railway has found that near one of its stations an old well is showing indications of changing its output from water to petroleum. A few miles distant from this station more oil has been found, and it is said the authorities

Courtesy of Sunset Magazine.

METHOD OF LOADING CARS IN THE CALIFORNIA FIELDS.

Large tank cars must now be provided for marketing the oil and quick-loading methods devised. The upper picture shows how California officials have met the demand. Lower picture shows a train load of oil starting for eastern markets. Oil-carrying ships also demand attention, and one recently launched at San Francisco, called the *Moffett*, has a capacity of 65,000 barrels cargo and a storage for 6,000 barrels of oil fuel.

OIL FIRE AT MOUNT HOPE, PANAMA.

Sometimes lightning plays havoc with oil structures. The picture was taken in May, 1908, shortly after a stroke of lightning set fire to the enormous tanks at Panama, and shows 11,000 barrels of oil going up in smoke.

of the road believe that at an early date they will have a supply of oil from local fields to operate many more of their locomotives. This new fuel, it is believed, can be produced in increasing quantities for about $10, Argentine gold, per ton. At present the Republic does not produce sufficient oil for her own consumption and large quantities are imported. Much of this comes from Mexico, and the total charges by the time it is upon the market in Argentina is approximately $1 per ton higher than the local product. Thus it will be seen that an enlarged output from local wells would benefit not only the producers but also the consumers. Three industrial plants at La Plata have recently contracted with the company operating some of the Mexican fields for the delivery of 60,000 tons of crude oil annually.

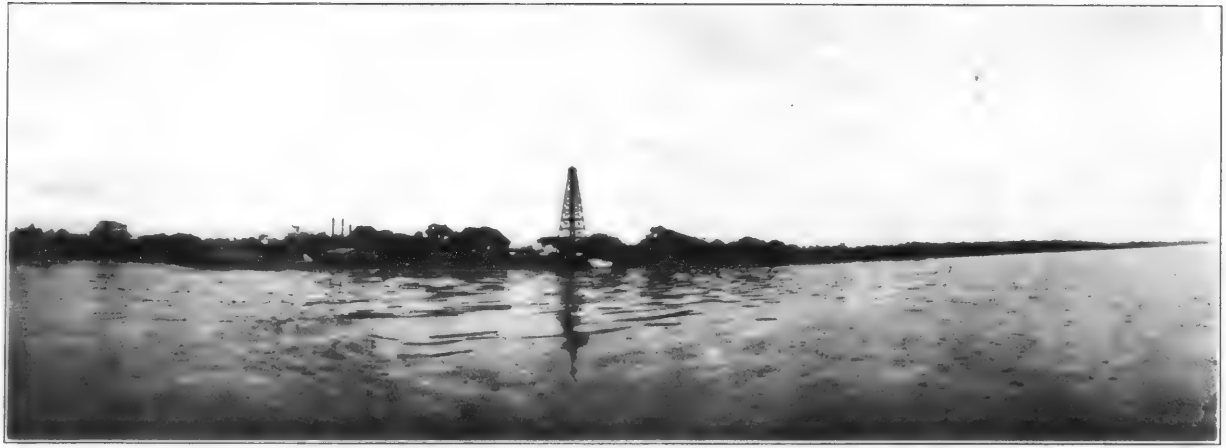
On the west coast of South America the Peruvian oil fields have shown excellent general results, and net profits of 10 per cent in some instances offer pleasing returns to stockholders, as well as spur others to more active work in sinking additional wells.

The Lobitos is typical of other fields, most of which extend for miles along the coast of the Pacific. These wells, however, do not supply a sufficient quantity of crude oil to meet the demand, which, as in other sections of the continent, has been steadily growing for some years. The same facts are true as regards the distilled product, while a market for the so-called residue is also active. In 1912 the Lobitos fields yielded 78,273 metric tons of crude oil, or an increase of 26,000 tons over the previous year. In 1906 only about 20,000 metric tons were produced. The gradual increase is largely attributed to the digging of deeper wells and the consequent tapping of larger supplies. Some of the wells gave more than 500 barrels daily for a considerable time, finally decreasing to about 100 barrels a day.

Generally speaking, the Peruvian wells are self-flowing, but must eventually be pumped. They range in depth from 1,500 to a maximum of 3,600 feet, and the single one of the latter depth required 1½ years to drill and the cost was $50,000.

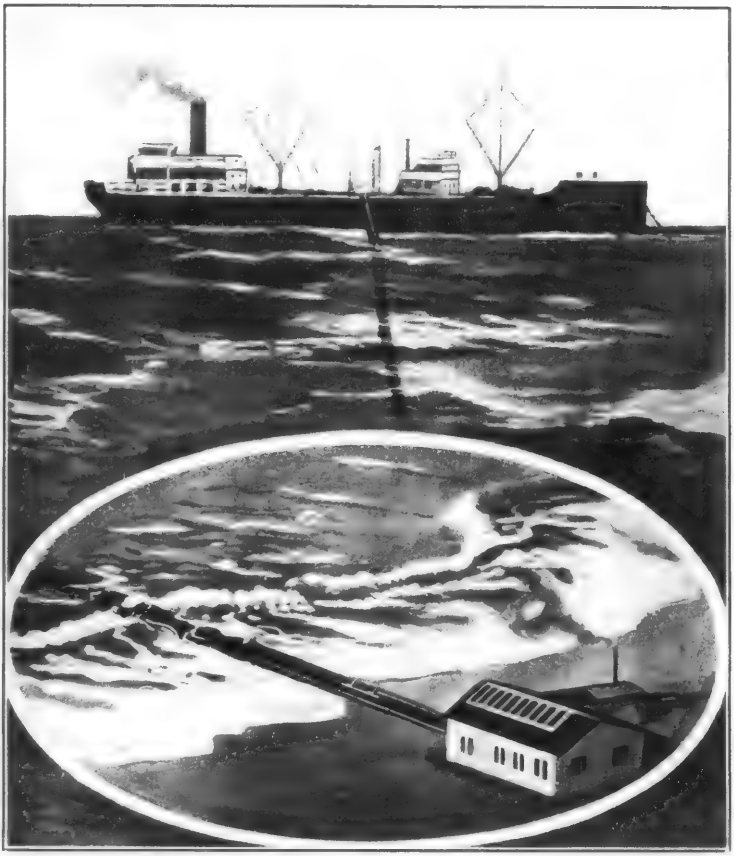
The recent announcement that the four large oil companies operating in Peru have been merged into one corporation to be known as the International Petroleum Co., with a capital of $20,000,000, portends more active development of oil lands throughout the Republic. As is natural to suppose, the Standard Oil Co. of New Jersey, which has long had an interest in the Peruvian fields, plays an important rôle in the new company, which will, it is said, market its oil and the various products made therefrom, locally and abroad.

Late advices from Peru indicate an active market for crude oil, not only on railroads and steamships, but for oil-burning motors which are being introduced quite generally. Small towns and even some of the most modern farms that heretofore have had little use for fuel oil are awakening to the fact that cheaper and more abundant fuel is within their reach.



THE DOS BOCAS OIL WELL.

The overflow from this wonderful well produced a lake of oil extending for a distance of a mile and a half, and spread itself over a vast area on Lake Tamiahua of from 50 to 60 square miles.



Courtesy of Scientific American

OIL VESSEL MOORED OUTSIDE OF BAR AT TUXPAM, MEXICO.

In 1913 the Mexican petroleum fields produced more than 25,000,000 barrels of oil. Much of this was loaded aboard ship at Tuxpam, where the water of the Gulf is too shallow to allow the vessels to go near shore. A method has been devised of pumping the oil through large pipes from shore to ship, as shown in the illustration.

An American corporation whose headquarters is in Buenos Aires recently obtained permission to construct warehouses and oil tanks in Bella Vista, a suburb of Montevideo, where a large supply of petroleum will be stored. The installation is to cost $150,000, a fact indicative of the progressive policy of the company, whose business has been growing steadily for several years. Last year this company imported into Uruguay 600,000 cases of kerosene and 115,000 cases of naphtha, the distribution of which was handled by no fewer than 30 agencies established in as many leading business and agricultural centers of the country.

In Venezuela coal and oil experts have been active in prospecting for both products. One of the companies, whose home is in Philadelphia, struck oil near Lake Maracaibo and the well is producing a flow of about 10 barrels a day; this well is not quite 400 feet deep. The finding of oil has had a stimulating effect on the two other companies prospecting in Venezuela. One of these English corporations is said to be capitalized at half a million dollars and to have grants for exploiting oil over 3,000 square miles of territory. This company, like both of the others, has its local office at Maracaibo.

The oil fields of Colombia are near the important seaports of Barranquilla and Cartagena. Engineers have estimated that a sufficient quantity of oil is within reach to supply a large portion of the demand of steamers passing through the Panama Canal; and as the field lies near the ocean crossroads that is destined to be more and more active, the efforts of the companies to find greater supplies of oil will doubtless be redoubled. In addition to oil the investigators have penetrated into what seems to be an enormous supply of natural gas. No use has yet been made of this gas, but it is proposed to pipe it to Barranquilla where it can be used for all commercial and industrial purposes.

The petroleum from the Colombian deposits is of fair quality, and at an exposition held at Bogota in 1910 it received first prize over oil from a number of other countries. A refinery has been established at Tubara for the making of gasoline, benzine, paraffin, and other by-products of petroleum, most of which find a ready sale in various parts of the Republic.

Some geologists believe that the great Mexican oil belt, extending along the Gulf coastal plain from the State of Tamaulipas to Campeche continues still farther southward through Central America. In several of the latter Republics oil has been found in numerous places. In Honduras a few months ago local business men raised $40,000 and established the Honduras Oil Co., which has the exclusive right to investigate and exploit 6,000 square miles of territory. The indications are most noticeable at Guare, about 66 miles south of Puerto Cortez and 35 miles from the present railhead of the National Railway.

OIL GUSHER IN MEXICAN FIELDS, KNOWN AS DOS BOCAS.

Several years ago this well caught fire, the flames reached a height of 1,500 feet, and at night a newspaper could be read miles away by the great light.

THE BAY AT COMMODORO RIVADAVIA, ARGENTINA.

At present this section of Argentina is producing the greatest quantities of petroleum, which finds an enlarged sale owing to the scarcity of coal for fuel. Many of the railways are burning oil and some of the industrial plants are also using it. In Argentina it is considerably cheaper than coal.

THE ZORRITOS OIL FIELDS OF PERU.

Peru is fast overtaking Japan as the eighth oil-producing country of the world. Here, as in various other sections, the wells are generally near the seashore—a fact that makes the marketing of the oil most convenient. The upper picture shows a general view of a section of the fields, while the lower one gives an idea of the storage tanks and loading pier. In 1913 Peru produced 1,857,355 barrels of oil; Japan in same period marketed 1,942,009 barrels.

LAKE TITICACA AT GUAQUI, BOLIVIA.

The discovery of petroleum in the eastern section of Bolivia is destined eventually to aid commercial and industrial activities in the highlands about Lake Titicaca, where coal is worth $30 to $40 per ton. The report of the Government engineer, Leon Mousnier, throws much light on petroleum possibilities in

In Costa Rica coal and oil have been found in the region known as Talamanca, and most of the deposits are only a few miles from the Caribbean coast. Costa Rica, now under the rule of one of the world's youngest and most progressive Presidents, is destined to develop and exploit both coal and oil to a greater extent than ever before in her history.

Mexico, as every one knows, furnishes a remarkable record of oil development. Eight years ago the several districts of that country sent to the world about 1,000,000 barrels of petroleum. Since that date the output has increased each year, and by 1913 over 25,000,000 barrels of oil were produced. Most of this product is not of the grade found, say, in Pennsylvania, but there are certain fields where, were they worked, a splendid grade could be produced. Mexican oil, however, finds a market all over the world and the different products of its refineries and factories are quite numerous. The residue of some of the oils is converted into asphalt for street paving and often sells for $40 per ton in Mexico City.

On some of the railways of the United States oil fuel has been in use a number of years; in Mexico, as everyone knows who is familiar with transportation there, oil-burning locomotives are in general use on many of the railways; numerous railroads and many steamships of the West coast of South America have been burning oil as motive power, notably the Antofagasta line, the nitrate roads, etc.; on express trains of the Great Eastern Railway of England oil fuel has become quite well established; Argentina's railroads are using it extensively; many freight and passenger vessels and also warships are propelled by the newer fuel; the new gateway at Panama has just passed its first two oil-burning ships, both equipped with 12-cylinder oil engines. One proceeded westward, the other eastward; but before doing so the great petroleum tanks at Balboa supplied these ocean travelers with 3,000 barrels of petroleum fuel. This new fuel long ago passed the experimental stage and we may confidently expect its use to extend to countless lines of commercial and industrial activity.

The world production of petroleum during 1913, measured in barrels of 42 gallons each, reached the enormous figures of 381,508,916 barrels. Of this amount the United States is credited with 248,446,230 barrels; Russia, 60,935,482; Mexico, 25,696,291; Roumania, 13,554,768; Dutch East Indies, 11,966,857; Galicia, 7,818,130; India, 7,500,000; Japan, 1,942,009; Peru, 1,857,355; while various other countries contributed their quotas to make the total output for the year the largest the petroleum industry has ever known.

The products which come from petroleum have vastly multiplied and are to be found to-day in one form or other in practically every home in the land; the earth is yielding her treasure more bountifully and man is constantly extending and broadening its usefulness.

COASTING FROM SKY TO SEA[1]

THINK of a continuous, thrilling, terrifying swoop of 100 miles in a hand car from the top of a snow-clad mountain, over 3 miles high, to the shore of a tropical sea! Such an experience causes one years afterwards, merely upon thinking about it, to catch one's breath and one's heart to miss a beat or two.

But it is impossible, do I hear you say? Just a moment, while I quote you a few, a very few, facts and figures. The Oroya Railway (El Ferrocarril Central del Peru) is a monument to the genius of Henry Meiggs, an American, or, rather, I should say, a United-States-of-North-American, for in the Southern Hemisphere the term "Americano" is not very definite, and we usually find ourselves indexed under "N" to distinguish us from the United States of Colombia, United Mexican States, etc. Callao, the Pacific terminus of the Oroya Railway, and one of the principal ports of Peru, is six days by boat south of Panama.

Lima, the "City of Kings," Peru's capital, is 6 miles from Callao, and is located on a broad tableland about 500 feet above the sea. The opening of the Panama Canal will undoubtedly stimulate travel to South America, and of all parts of the continent Peru is wonderfully rich in natural wonders and historical background.

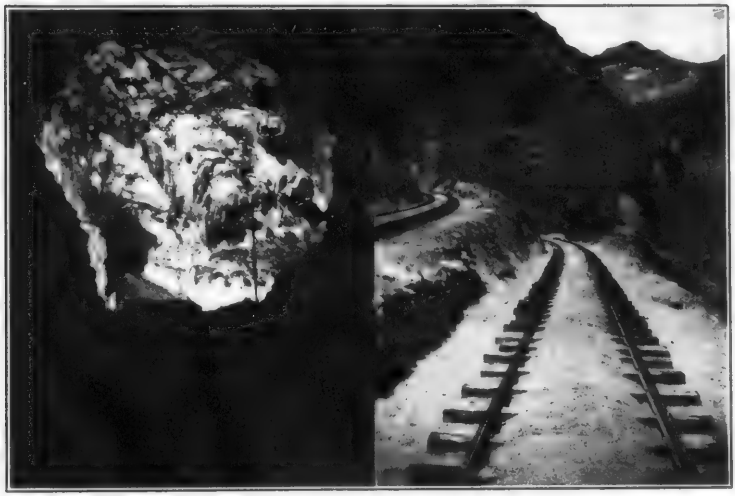
The Oroya Railway was begun in 1869. Beginning at Callao it climbs steadily to an elevation of 15,665 feet above sea level, where the divide is crossed through the Galera tunnel, at mile 106. The Morococha branch rises to elevation 15,865 feet—the highest point reached by any railroad in the world. At Oroya, mile 138, the road divides, one branch going north to the famous Cerro de Pasco copper mines, the other 80 miles south to Huancayo, with a projected extension to Cuzco, the old Inca capital, which has had rail connection with the sea at Mollendo for several years. Another branch, about 300 miles long, is under construction down the eastern slope of the Andes to the head of navigation on the Ucayali River, one of the important upper tributaries of the Amazon.

The Oroya road is not only the highest in the world, but there is no other which lifts its breathless passengers to any such altitude in such an appallingly short distance. To climb as the Oroya climbs, a Hudson River train leaving New York City would have to ascend, half an hour before it reached Albany, a distance 1,000 feet greater

[1] By James Gordon Steese, U. S. A. Late Assistant Engineer, Panama Canal.

CAPT. STEESE (RIGHT, STANDING) AND PARTY READY FOR THE WHIRLWIND TRIP DOWN THE OROYA RAILROAD IN A HAND CAR.

"EL VISO," THE "V" IN THE CANYON OF THE RIMAC RIVER OVER WHICH RUNS THE OROYA.



A TRIP ON THE OROYA RAILROAD.

Upper: The "roof of the world," mountain regions on the Oroya. Center: One of the numerous tunnels cut out of the sheer face of the cliff; a series of switchbacks, enabling the trains to gain grade on its lofty ascent. Lower: A llama train, in an Andean village, preparing for a return trip to the mines.

Photo by Underwood & Underwood.

A HANDCAR ON THE OROYA RAILROAD.

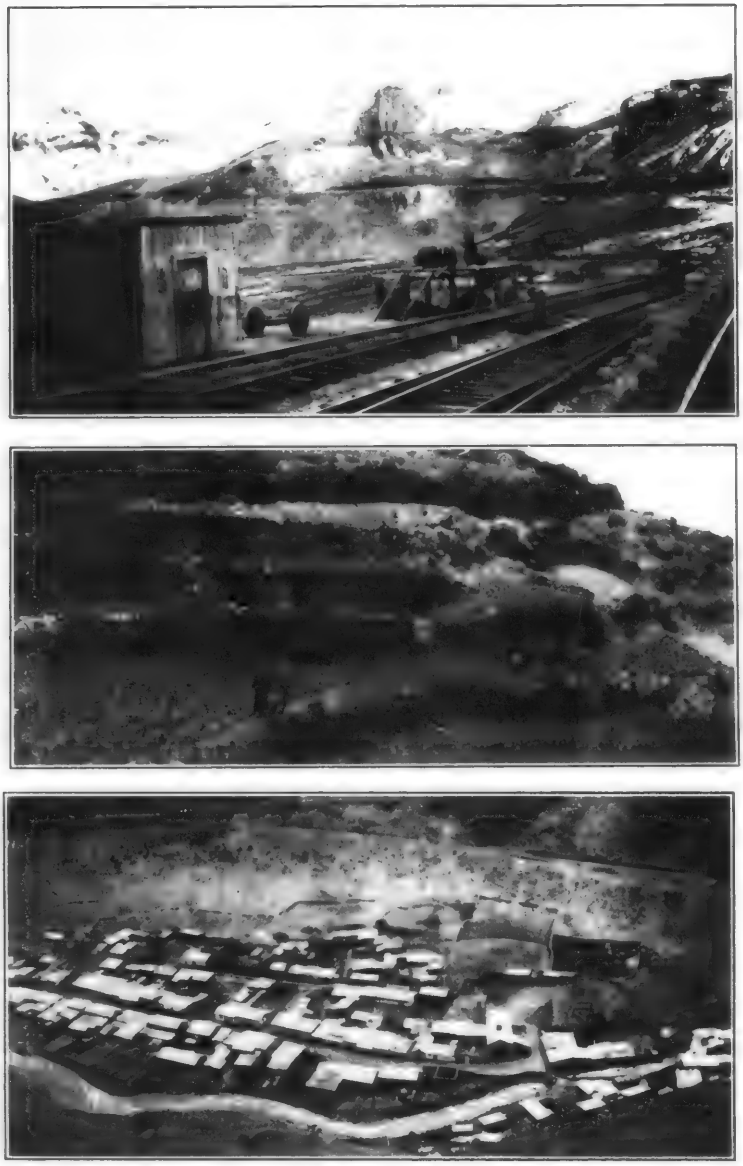
In the distance is the Casapalca copper smelter, at an altitude of over 2½ miles above the sea and 95 miles from the coast. The ore supply for the smelter is obtained from the celebrated Casapalca and Cerro de Pasco mines, both of which are served by this railroad.

than that from sea level to the summit of Pike's Peak. The daily passenger train leaves Callao in the forenoon and reaches Oroya late in the afternoon. As there are no night trains on account of the great danger of rocks falling down on the track, the round trip ordinarily requires two days. Since there is a continuous down grade from the Galera tunnel to the sea, an opportunity is offered for the most unique hand-car ride in the world.

Through the courtesy of the general manager of the line we were afforded exceptional facilities for making the trip. His private car was attached to the evening train for Chosica, a fashionable resort about 35 miles out of Lima, at an elevation of about 2,800 feet. For an hour or so we wound through a wide irrigated valley, fat and prosperous looking, with plantations of sugar cane and cotton fenced in by mud walls, the roofs of a hacienda showing now and then over the green. Beyond that the bare brown mountains—high enough, it seemed, yet really no more than foothills—shut in and shouldered upward, tier on tier behind each other, yellow and terra cotta and tawny brown, occasionally flashing through a slit in their flanks the snowy shoulders of peaks miles and miles away, to which we were to climb. At Chosica our car was sidetracked for the night, dinner was served aboard, and we turned in to be ready for an early start the next morning.

About 4 a. m. we were awakened by our car being picked up by the morning freight, whose schedule had been advanced several hours for our special benefit. The real climb now began. The broad valley soon narrowed, the naked rocks closed in, and we were fairly in the canyon of the Rio Rimac. Twelve miles out of Chosica an elevation of 5,000 feet was reached at San Bartolome. Here is the first switchback, Meiggs's original device, which enables a train to zigzag up the face of a canyon wall without resorting to abnormally heavy grades and rack and cog systems.

At Matucana, 7,700 feet above the sea, the hand car, which was to be our means of descending, was trailed on behind. Our Indian cook now brought in coffee, prepared in the Peruvian style, which was very acceptable, as the air was quite chill. Then the climb continued over spider-web bridges, more switchbacks, and numerous tunnels, the tunnels of the Infiernillo (Little Hell) opening at either end of a bridge spanning a chasm over 1,000 feet deep. As the train wound and creaked along the forehead of the mountain one could look down on the roofs of villages miles below, ant people and ant donkey trains, and the multitudinous little fields fenced in with thick mud walls, which made the valley floor a gigantic waffle iron. Above them, on a level with one's eyes, and up and up, seemingly to the very top of some of the mountains, were the old terraced fields of the ancient Incas, grass-grown now with the turf of centuries. The old terraces are



ANDEAN SCENES ALONG THE OROYA RAILROAD.

Upper: The last of the switchbacks near the summit of Oroya. Center: Present relics of the irrigated and cultivated terraces of the Incas. Lower: An ancient Indian village looking down from a steep grade on the railroad.

Courtesy of Scribner's Magazine

THE NARROW RIVER VALLEY OF THE RIMAC ALONG THE OROYA ROUTE.

WATER TANK AND TURNTABLE ON THE OROYA RAILROAD IN PERU.

Courtesy of Bay View Magazine.

OAYCAY CANYON, ONE OF THE PICTURESQUE MOUNTAIN VALLEYS ON THE OROYA RAILROAD.

mostly in disuse now, but the fields and groves of the lower levels still use some of the old irrigation troughs. They were cut in the rocks by a people who knew neither cement nor iron pipe, but they follow the contours as though plotted with a transit. Sometimes, as the cars creep along a canyon wall halfway to the top, one can follow the silvery ribbon of water for miles along the face of the yellow rock.

More bridges, more switchbacks, and ever the air grows clearer and thinner and colder. The fields and gardens are gone now, the bleak table-land country appears, and people whose hearts or nerves are bothersome would begin to have soroche. Below crawled burros and llama trains carrying silver and copper ore. At Casapalca, 13,600 feet, is the big smelter of this neighborhood. Here was a mud corral full of llamas, those absurd-looking animals, seemingly a cross between a sheep, a camel, and an ostrich, which viewed the noisy industry with their look of timorous disdain.

Fourteen thousand—the chimneys of Casapalca's smelters were pins stuck in the carpet of the valley miles below—15,000—600 more, and the train climbed up and over, and rested on the top of the cold, wind-swept, Andean roof. All about were peaks and blankets of snow. One rose painstakingly and walked with care. Fifteen thousand feet is a good bit of a jump to take before breakfast. Behind the station Mount Meiggs climbs up another 2,000 feet, whence, through air so crystalline that one might fancy one could walk to the summit in half an hour, it looks down on both sides of the divide. To the west is the long descent, to the east the chilly plateaus and snow valleys of the Andean treasure land.

It was now noon, and, in spite of the unaccustomed altitude, we ate a hearty Peruvian breakfast, consisting of soup, salad, several meat courses, vegetables, wine, and fresh strawberries and cream. Leaving the general manager's car to be brought back by the next down train, we transferred to the hand car and pushed off. The experiences of the next four hours are too kaleidoscopic for accurate or detailed description. We started amid snow and ice, bundled up in sweaters, overcoats, and blankets, and landed in lemon and orange groves four hours later. Continuously before us unrolled a grand panorama, ever changing and ever more wonderful. Whereas our train had painfully toiled upward foot by foot, we now seemed to rush down a mile at a swoop. But two stops were made in the 106 miles, once for a section gang repairing track in a tunnel, and again to let the up-passenger train by. Going at breakneck speed, our hand car rushed out of one black tunnel, across a swaying bridge strung over the chasm of the Rio Rimac, and into the darkness of another tunnel cut out of the sheer face of the cliff. As we careened across the Infiernillo bridge, one of our party aptly described his impressions as a "flash of daylight accompanied by a sinking of the heart."

Photos by Alford

IN THE HIGH ANDEAN REGIONS ALONG THE OROYA RAILROAD.

Upper: Casapalca, 13,600 feet above the sea, and its copper smelters. Lower: An early method of working the land in the eastern regions of the Andes at a height of 10,000 feet. A large portion of the interior still preserves some of these interesting features, but as railroads penetrate into these regions ancient customs give way to more modern ones.

In all we rushed through 47 tunnels, crossed a dozen flimsy-looking bridges, and slowed down for eight switchbacks. The fastest kilometer was made in 56 seconds (about 40 miles per hour), and the fastest single stretch of 27 kilometers in 29 minutes (about 35 miles per hour). When one considers the steep grades and the sharp curves necessary to get a railroad through such a canyon, the fact that our light hand car, traveling at such a speed and controlled only by a hand brake, stayed on the rails, is the best evidence in the world of the excellent construction of the line and of the vigilance of the maintenance force. During our tour of South America we had many strange and interesting experiences, but none for novelty, thrill, and magnificence to compare with the hand-car coast down the Oroya Railway.

RECEPTION OF THE DOMINICAN MINISTER

PRESIDENT WOODROW WILSON officially received Señor Dr. Enrique Jiménez, the newly accredited Envoy Extraordinary and Minister Plenipotentiary of the Dominican Republic, on Tuesday, January 5, 1915. The reception took place at the White House. In presenting his credentials, the Minister made particular reference to the friendly relations and sympathetic cooperation existing between the two countries, and the President responded in a similar spirit.

Dr. Jiménez is one of the prominent men of his country. He has had an interesting career, and has served in important public positions. While vice president of the Chamber of Deputies in 1913, he visited Washington with other distinguished gentlemen from that country. The new minister comes from one of the leading families of the Dominican Republic, and is a nephew of Señor Dr. Juan Y. Jiménez, the President of the nation.

In presenting his letters of credence, Dr. Jiménez said:

I have the honor to place in your hands the autograph letter of the President of the Dominican Republic which accredits me as his Envoy Extraordinary and Minister Plenipotentiary near the Government of Your Excellency. It also devolves upon me to deliver to you the letter of recall of my worthy predecessor, Señor Don Eduardo Soler.

In the International American movement Washington's great country has exercised powerful influence on the moral and physical development of the young Latin

American Republics and has widely sown the principles of democracy over Central and South America.

It is true that many of those Republics, notwithstanding their vast area and wonderful national resources, have been too slow in their advance, by reason, no doubt, of educational circumstances that can not be easily overcome.

The Dominican Republic since it was born to a life of independence has been unable wholly to escape those circumstances, and we have seen it undergo a period of terrible convulsions, caused by an incessant state of fratricidal war that has checked its progress.

A transformation, however, has just taken place there, fraught with greater promise than has ever been known. That is to say, popular elections have been held in which the will of the Dominican people has been freely voiced, and have resulted in the election of citizen Juan Y. Jiménez, whose aspiration to establish civil government in the Republic has already been demonstrated.

Thus is a new era of sound government and progress launched under so promising auspices in my country, and it is to be hoped that the intelligence and good nature of the Dominican people will improve this more than propitious opportunity to demonstrate that it is not lacking the faculty of self-government.

President Jiménez trusts and expects, Honorable Mr. President, that the relations between your Government and that of the Dominican Republic, growing every day in closeness and cordiality, will be a source of salutary teachings, and will bountifully and effectively spur on the Dominican people to develop their material wealth and freely to broaden their moral and intellectual fields. And nothing can be more welcome to me than the office of medium in those relations of mutual respect and frank and true friendship, to which I shall devote my modest ability and best efforts.

In expressing to you, Mr. President, my personal sympathies and deepest respect, may I be permitted to present to you, with mine, the greetings and wishes of President Jiménez for your personal happiness and for the aggrandizement and prosperity of the Government and people of the United States?

The President replied to the remarks of the new minister as follows:

MR. MINISTER: I receive with sincere satisfaction from your hands the letter whereby you are accredited as Envoy Extraordinary and Minister Plenipotentiary of the Dominican Republic, near the Government of the United States, and I accept also the letter by which your predecessor, whose stay among us is pleasantly remembered, is recalled.

The friendly and disinterested good offices which the Government of the United States has exercised for the removal of causes of internal disturbance and instability in the Dominican Republic, and the assistance which it has unselfishly given toward the development of the Republic's resources and a reorganization of its financial system, are too well known to you to need recital. If these efforts have contributed toward the establishment of a government on a constitutional basis, by the free vote of the people, we are highly gratified.

I sincerely appreciate the friendly sentiments which you express to me on behalf of your President. It is my hope that by a just and enlightened administration he will convince the Dominican people that it is in well-regulated government based on law and order that their true interests lie, and that under his administration the Dominican Republic may take its rightful place among the law-abiding and progressive countries of the world. To this beneficial end the Government of the United States will be happy to continue to give, if needed, its counsel and cooperation.

I ask you to convey to President Jiménez my best wishes for his personal welfare and for a successful administration, and to accept for yourself my thanks for your own good wishes.

PAN AMERICA IN THE MAGAZINES.

The growth of Pan American Unity, by John Bassett Moore, in The Independent for January 11, 1915, is an historical sketch of the international relations, chiefly of a political character, which have existed between the republics of the Western Hemisphere since the period of the revolution which established the independence of the United States. The article is a clear and concise exposition of the Pan American situation and deals comprehensively with the various international conferences and congresses which have been held from time to time with the object of promoting peace and comity between the American nations as well as for the purpose of safeguarding their mutual interests from the agressions of other nations by international agreements, treaties, etc. Relative to the effect of the American Revolution on Spain and her colonial possessions Mr. Moore writes:

> The chief significance to Spain of the American Revolution lay in the fact that it marked the beginning of the end of the old system of colonial monopoly. In the Orient, as well as in America, colonies had been held by European nations purely for purposes of national exploitation. The movement for independence in America indicated the fact that the time would come when, with the development of colonial resources, dependence would be succeeded by independence.

He briefly recounts the events in Spain growing out of the Napoleonic invasion in 1808, and the transformation of the loyalist resistance in her American colonies to alien domination into the movement for independence and continues:

> In this struggle the Government of the United States maintained a neutral position, but the sympathies of the people ran strongly in favor of the revolutionists. At that moment every movement indeed for national independence naturally made a strong appeal to the sympathies of the people of the United States. Of the sympathy with the revolution in South America the principal spokesman in our public life was Henry Clay.
>
> In 1817 a commission consisting of Cæsar A. Rodney, John Graham, and Theoderic Bland, with Henry M. Brackenridge as secretary, was sent out to examine into the conditions existing in South America, and particularly in Buenos Aires and Chile. The views of the commissioners, which in many respects differ, were embodied in separate reports. These reports were duly submitted to Congress, as was also a special report from Joel R. Poinsett, who had acted as an agent of the United States at Buenos Aires. The general tenor of the reports was unfavorable to the recognition of independence at that time, but this did not deter Mr. Clay from moving in the House of Representatives in March, 1818, an appropriation for the salary of a minister to the government which had its seat at Buenos Aires. It was not, however, till 1822 that recognition of independence began to be extended to the new American nations. Against such recognition, the Spanish Minister at Washington, in the name of his

Government, solemnly protested, but the action of the United States was vindicated, with his accustomed ability, by John Quincy Adams, then Secretary of State, on grounds both of right and of fact.

In spite of the protest of the Spanish Minister against the action of the United States and of the refusal of his Government for many years thereafter to recognize the independence of its former colonies, that independence had become an irrevocable reality. That of which Bolivar and his disciples had dreamed had come to pass.

Soon after the recognition of the South American Governments by the United States a situation arose in which it became necessary for the latter to consider what seemed to be a momentous step in its relations with the countries whose advent into the family of nations it had so heartily applauded.

On December 7, 1824, Bolivar, as head of the Republic of Peru, sent out an invitation to Colombia, Mexico, Central America, the United Provinces of the Rio de la Plata, Chile, and Brazil, to send representatives to a congress at Panama. Subsequently an invitation to attend the conference was extended to the United States by the ministers of Colombia and Mexico. * * *

At this time John Quincy Adams was President of the United States and Henry Clay was Secretary of State. Although they were careful to safeguard the neutral position of the United States, the proposal for a congress met with their warm and enthusiastic approval. With a long vision of the future, they sought to grasp the opportunity which lay before them to establish between the independent nations of this hemisphere the foundations of an enduring friendship. "Having been the first," said Adams, "to recognize their independence and to sympathize with them, so far as was compatible with our neutral duties, in all their struggles and sufferings to acquire it, we have laid the foundation of our future intercourse with them on the broadest principles of reciprocity and the most cordial feelings of fraternal friendship. To extend those principles to all our commercial relations with them, and to hand down that friendship to future ages, is congenial to the highest policy of the Union, as it will be to that of all those nations and their posterity." Entering into the matter more particularly, he placed the interest of the United States in the congress on four grounds: First, that of promoting "the principles of a liberal commercial intercourse;" second, the adoption of liberal principles of maritime law, including the rule that free ships make free goods, and the proper restriction of blockades; third, an agreement between all the parties that each would "guard by its own means against the establishment of any future European colony within its borders," as had already been announced in the message of Monroe; and fourth, the promotion of religious liberty.

Animated with these liberal sentiments, the President nominated to the Senate Richard C. Anderson of Kentucky and John Sergeant of Pennsylvania as envoys extraordinary and ministers plenipotentiary of the United States to the Congress. * * *

In the end the nominations of the President were confirmed, but when our representatives reached the Isthmus of Panama the congress had adjourned. Four governments were represented in it, namely, Colombia, Central America, Mexico, and Peru. The assembly held 10 meetings, the last of which took place on July 15, 1826. Representatives of Great Britain and of the Netherlands were present on the Isthmus and, although they were not admitted to the congress, no doubt freely advised with its members.

Four agreements were signed in the congress: (1) A treaty of perpetual union, league, and confederation; (2) an engagement for the assembling of the congress every two years, and while the war with Spain lasted, every year; (3) a convention specifying the contributions in men, in ships, and in money, which the parties should make for the prosecution of the war against Spain; and (4) a plan for the organization of their common force. To a great extent these agreements related to the interests which the parties had as belligerents, but there were some of the stipulations which had a far

wider scope. An attempt was made to establish a council for the interpretation of treaties and for the employment of conciliation and mediation in the settlement of international disputes. It was provided that all differences between the contracting parties should be amicably compromised, and that if this were not done, such differences should be submitted to the General Assembly, as it was called, for the formulation of an amicable recommendation. In case of complaints or injuries, the parties were not to declare war or to resort to reprisals without first submitting their grievances to the decision of the General Assembly. Nor was any of the parties to go to war against an outsider without soliciting the good offices, interposition, and mediation of the allies. Any contracting party violating these stipulations either by going to war with another or by failing to comply with the decision of the General Assembly, was to be excluded from the confederation and was to be incapable of restoration, except by a unanimous vote. The contracting parties also pledged themselves to cooperate to prevent colonial settlements within their borders, and as soon as their boundaries were determined, mutually to guarantee the integrity of their respective territories.

These benevolent proposals, which strongly remind us of some that are put forth to-day, were not destined to be carried into effect. The agreements signed at Panama were ratified by one only of the contracting parties—Colombia—and by Colombia only in part. In reality the conditions at the time were such that effective cooperation was scarcely possible. * * *

Numerous conferences subsequent to this are dealt with. It was not until the conference of 1889, inaugurated at the instance of Secretary of State James G. Blaine, that a general attendance of representatives from the various American Governments was secured. According to Mr. Moore:

The Congress of the United States, at length, by an act of May 24,1888, authorized the President to invite the Republics of Mexico, Central and South America, Haiti, Santo Domingo, and the Empire of Brazil to join the United States in a conference to meet at Washington on October 2, 1889. The subjects proposed for the consideration of the conference were: (1) Measures tending to preserve the peace and promote the prosperity of the American nations; (2) measures toward the formation of a customs union; (3) the establishment of frequent communications between the various countries; (4) uniform customs regulations; (5) a uniform system of weights and measures; (6) laws for the protection of patents, copyrights, and trade-marks; (7) extradition; (8) the adoption of a common silver coin; (9) the formulation of "a definite plan of arbitration of all questions, disputes, and differences that may now or hereafter exist" between the American nations, "to the end that all difficulties and disputes between such nations may be peaceably settled and wars prevented."

When the conference assembled Mr. Blaine again occupied the post of Secretary of State. His address of welcome to the delegates was worthy of the occasion, and he was chosen to preside over the deliberations of the assembly. This was the first of what have come to be distinctively known as the International American Conferences, of which four have already been held, and the fifth of which would now be in session but for the breaking out of the unfortunate conflict in Europe.

The first conference continued to sit until the 19th of April, 1890. Various important international agreements were formulated. * * *

An agreement destined to produce practical result was that by which was constituted the Bureau of the American Republics, now known by the short title of the Pan-American Union. This organization, after 20 years of active usefulness, had the good fortune four years ago to be installed at Washington in a building which is one of the finest examples of architecture in the country.

Another measure that has yielded definite results was the agreement for the prosecution of surveys for what is popularly known as the Intercontinental Railway. Although it is not probable that such a railway will in the near future furnish an actual means of transportation between, for instance, New York and Buenos Aires, yet the various links in the chain of railways to which the name of Intercontinental is applicable have been steadily progressing, and many of them are in actual use for purposes of transportation. * * *

Between the First and Second International Conference of American States an interval of more than 11 years elapsed. The second conference sat in the City of Mexico from October 22, 1901, to January 31, 1902. One of its notable results is the fact that by means of it the American nations became parties to The Hague Convention of 1899 for the pacific settlement of international disputes. Moreover, a project of a treaty was adopted for the arbitration, as between American nations, of pecuniary claims. This treaty was signed by the delegations of all the countries represented in the conference. It obligated the contracting parties for a period of five years to submit to the Permanent Court at The Hague all claims for pecuniary losses or damage which might be presented by their respective citizens when such claims were of sufficient importance to justify the expense of arbitration; but it also permitted the contracting parties to organize a special jurisdiction in case they should so desire.

The Third International American Conference was held in Rio de Janeiro in 1906 and resulted in the conclusion of certain treaties or conventions, two of which may be specially mentioned. One was the convention for the renewal of the treaty concluded at Mexico for the arbitration of pecuniary claims. The other is the convention providing for the creation of what is known as the International Commission of Jurists, to formulate codes of international law for the American nations. This commission held its first meeting at Rio de Janeiro in the summer of 1912 and is to hold a second meeting at the same place in the summer of 1915. At the first meeting the commission was divided into committees, to each of which is intrusted the preparation of drafts of statutes on certain designated subjects. The work of the commission is to be submitted for final approval to the Governments concerned or to the International American Conference, and so far as its provisions may be of general application it is not improbable that they may be brought before the Peace Conference at The Hague when conditions are such as to admit of the revival of that assembly.

The Fourth International American Conference was held at Buenos Aires in 1910. It was notable for having finally dealt with all the subjects on its program, including treaties relating to patents, trade-marks, and copyrights. A treaty was also made for the indefinite extension of the agreement for the arbitration of pecuniary claims. In the report of the delegates to the fourth conference special reference is made to the harmony which characterized its deliberations. There can be no doubt that, quite apart from the actual work accomplished, the free interchange of views in friendly conference between representative men from all parts of America can not fail to create a better understanding and to draw closer the relations between the countries concerned. This is, indeed, one of the chief benefits of the International American Conferences. The process of assimilating or harmonizing legal rules and remedies in countries whose systems of jurisprudence are derived from different sources is necessarily slow and uncertain. But this by no means implies the existence of serious obstacles to the promotion of a free and beneficial intercourse.

The Native Races, in the January number of the Century, is the third paper of the "South of Panama" series by Prof. Edward Alsworth Ross. The fascinating subject of Incaic and pre-Incaic civilization is dealt with in connection with descriptions of some of the wonderful ruins of palaces and temples which have been uncov-

Courtesy of Scribner's Magazine.

AT THE MARKET, SICUANI, PERU.

"But the ultra-Parisian styles on the Prado seem simple and natural beside the costume of the *chola*. The lower part of her body is ballooned out with a great number of short skirts. On her feet are high boots with exaggerated French heels. A fringed silk shawl, draped from her shoulders, obliterates her waist line. Her ears carry large pendants, while her head is surmounted by a high, bell-crowned, narrow-brimmed, enameled straw hat." (From "The Native Races," by Edward Alsworth Ross, in the *Century* for January, 1915.)

ered in Peru and Bolivia, and of the remarkable earth sculpture of the famed sacred valley of the Urubamba. Prof. Ross writes in part as follows:

Cuzco, more than 2 miles aloft, once city of Manco Capac, center of the Inca culture, and capital of a great aboriginal empire, with its many furlongs of ancient walls, its Temple of the Sun, its splendid churches, and its megalithic fortress of Sacsahuaman, is, to lovers of the past, the most fascinating spot in the New World. One day, surely, it will be a great goal of pilgrimage, like Rome, Jerusalem, or Cairo. Within a decade or two Cuzco will possess comfortable hotels from which parties of "see-America-first" travelers will tour in automobiles, visiting within 30 leagues the greatest monuments and the most impressive mountain scenery in the Western Hemisphere. A Cook who should organize a good tourist service, make known the wonders of the region, and turn in this direction a stream of appreciative travelers, would make his fortune, while at the same time giving encouragement to American archæology.

Since the uncovering by the Yale expedition, led by Prof. Hiram Bingham, of the wonderful stone city of Machepicchu, perched 2,000 feet above the brawling Urubamba at a point about two days' journey from Cuzco—a relic of the pre-Incan period of which the Incas themselves knew nothing—the intellectuals of Cuzco have been in a ferment over aboriginal America. At every social gathering you hear animated discussions of ancient walls and monuments, prehistoric conquests and migrations, Kechua language and customs. Dr. Giesecke, the American rector of the University of Cuzco, has traveled more than 10,000 miles visiting and searching for the relics of the past.

"Do you expect more finds?" I asked him.

"Many," he replied emphatically. "Why, as yet we haven't more than scratched the surface."

Portions of 14 palaces of Inca rulers line the streets of Cuzco, and much of the walls of the Temple of the Sun has been incorporated into the Church of San Domingo. These walls are of finely cut blocks laid in courses without cement. It has often been said that the joints in this wall will not admit the point of a knife blade. Not only is this true, but a needle, or even a hair, can not be inserted between these great blocks. No doubt this is the finest mason's work in the world; yet the microscope shows that these stones were wrought not with iron or steel, but with tools of champi, an alloy of copper and tin.

The front of the wall inclines a little away from the street and the corners are beautifully rounded. The Incas were ignorant of the arch, so a gateway or doorway is spanned by a single great beam of stone, giving the effect of an Egyptian portal. On certain adjacent blocks in the temple wall the masons left little knobs, which seem to be grouped in a definite order. The prior of the convent suggested that these projections represent quippus, or writing by means of knots in strings, and give the date and builder of the wall. In some stones there are many holes, drilled for the purpose of attaching the plates of gold forming the great image of the sun, which later were removed in order to make up the ransom of Aatahuallpa.

Not only are there thousands of square yards of Inca wall visible in Cuzco, but unknown stretches of such walls have been plastered over. Some day they will be reverently restored by men more capable of appreciating that wonderful indigenous civilization than the avaricious adventurers who brutally destroyed it. Although the laws of Peru protect Inca remains, vandalism continues. Poking about the inner courts of Cuzco I came upon masons, red-handed, pulling down a fine old wall, with stones as big as a bureau, in order to get cheap material for some mean construction of their own.

But the stupendous stonework of the vast fortress above Cuzco belongs to a period long before the sun worshippers. Of the origin of these walls the Incas knew nothing. They are monuments, perhaps, of the same civilization that at Tiahuanacu, a few miles south of Lake Titicaca, at an elevation of 12,900 feet, left the ruins of a city of a million inhabitants, which the archæologists can account for only by supposing it dates from a period when the Andean plateau was thousands of feet lower than it now is and enjoyed a milder climate. At the fortress of Ollantay-tambo, a day's ride from Cuzco, there is a row of six porphyry slabs ranging in height from 11 to 13 feet, 5 to 7 feet wide, and 3 to 6 feet thick. Another block is 14 by 5 by 3. These stones must have been sawed out, for at the bottom of certain cuts one finds the thin groove left by a stone saw. Halfway up the slope from the Urubamba lie the "Tired stones," which for some unknown reason the ancient workmen abandoned on their way to the fortress. One appeared to be 9 feet by 7 by 5; another 15 by 10, with 3 feet of thickness visible above ground. All these came from a quarry across the river and 3,000 feet up the mountain. How such monoliths were brought to their present resting place beggars the imagination. * * *

Three hours in the saddle from Cuzco is Chinchero, a town of almost pure Indian population. Its plaza occupies the site of a great Inca palace, the niched side wall of which is still standing. Terraced fields as even as a billiard table, sustained by laborious walls of cut granite, line the slope below the palace. Royal gardens they must have been, tilled to perfection, for no mere hind would rear such walls for his fields. Then comes a granite knob, with a great number of seats, stairways, and passages cut with beautiful precision in the living rock. Here, no doubt, were wont to sit the Incas while they took their ease and feasted their eyes with the sight of the land they had blessed with peace and prosperity. On the one side they could see verdant vales and slopes, bearing shelves of abundance, against a remote background of red ridges, and beyond that a glorious amphitheater of purple, snow-capped mountains. On the other side a wild glen drew their glance down into a darkling canyon leading precipitately into the Urubamba, thousands of feet below. One longs to enter into the feelings of these chiefs as, followed by attendants, they descended from their common hall to lounge in their lookout seats through a bright afternoon and watch the living panorama pass through its ever-changing phases of light and color and shadow.

We entered the church on the terrace above the plaza—a church older, perhaps, than the landing of the Pilgrims—and found it packed with 700 Indians, every woman in her striped homespun shawl, every man in his striped poncho. Not this side the Llama Temple in Peking have I come upon a spectacle so weird and outlandish. The eyes of the kneeling worshipers followed the chanting procession as it wound its way about the church, and at the supreme instant of the mass they lifted their hands, pressed palm to palm, and yearned toward the altar in a mute but passionate adoration. * * *

A day from Cuzco brings one down into the deep, romantic valley of the Urubamba, which for about 100 miles—until the river breaks through the main Cordilleras and descends through the forested Montana to become the Amazon—constituted the heart of the old native civilization. In western China I supposed I had found the climax of man's endeavors to extend by a limitless toil the food-bearing area, but the prodigies of earth sculpture along the Urubamba surpass even those of garden-like Szechuen. The valley floor, from half a mile to a mile in width, has been molded into beautiful terraces, each of some acres in extent, and from 6 to 9 feet above the next lower one. The line of drop of these fields is a diagonal between the direction of the river and the slope from the sides of the valley toward the river. The making of these regular terraces was a work for Titans. Yet it was completed before the Spaniard appeared on the scene.

Courtesy of the National Geographic Magazine.

PERUVIAN INDIAN WEAVING A PONCHO.

"We entered the church on the terrace above the plaza—a church older, perhaps, than the landing of the Pilgrims—and found it packed with 700 Indians, every woman in her striped homespun shawl, every man in his striped poncho." (From "The Native Races," by Edward Alsworth Ross, in the *Century* for January, 1915.)

Scarcely less wonderful are the narrow terraces, the andenes, which make a staircase to the height of 1,000 or even 1,500 feet up the slopes, in places where some stream from the snow fields can be captured for irrigation and led gurgling down from terrace to terrace. The walls of the andenes are made of rough-fitted stones, and are from 4 to 15 feet high. The andenes narrow as the slope becomes steeper, until you find a wall 12 feet high built in order to gain for cultivation a strip of earth not over a yard wide. No doubt in many cases the earth was brought in baskets from pockets among the distance rocks. Surely nowhere on the globe has so much sweat been paid for a foot of soil as here. Nowadays the population is much sparser than of yore, the food struggle is less dire, and the upper terraces have therefore been left wholly to the weeds.

The earth sculpture of this valley could have been produced only under three conditions: First, a population multiplying at a natural rate. Even to-day among the Kechuas reproduction begins soon after puberty; "proving" precedes marriage, and the unmarried mother of a couple of boys is a particularly desirable person, because boys are an asset. Second, lack of opportunity to expand. The Kechuas must have been bottled up between the warlike Aymaras to the south and the savage wielders of the poisoned dart to the north of them in the jungles along the Lower Urubamba. Third, a long period of occupancy. Only the toil of several generations can account for such prodigies of earthwork as we find in this region.

So one imagines a people of few wants, unwarlike, unadventurous, home-loving, as industrious as the denizens of an ant hill, who, clad in two garments, bore earth on their backs, dressed stones, reared walls, and opened ditches, content if the day's work brought a fistful of beans or a double handful of parched corn. Only the occasional religious festival, with dance and a chicha debauch, brightened the gray of a toilsome existence. So that this remote valley is a peephole into the old simple life of mankind before the advent of trade and wants and letters—the life of Egypt and Babylonia, of Hittites and Etruscans, before ever there was Jew or Greek or Roman.

Economic Conditions To-day in Argentina, by George E. Roberts, of the National City Bank of New York, is the leading article in The Americas for December. The following excerpts from the article would indicate that Mr. Roberts has a comprehensive grasp of the situation and a sympathetic understanding of the conditions which lead to a justifiable confidence in the future prosperity of the great Republic:

The ups and downs, booms and reverses, of the leading countries of South America have been very like the similar experiences of the United States. Indeed, the people of the United States should have a keener insight into conditions in South America and a better appreciation of the recuperative powers of those countries than would naturally be found in Europe, for our people have gone through the same vicissitudes of development. Every State in the United States has had the land boom that accompanies a rush of settlement, and the period of reaction that follows after the settlers have spent the little capital they brought in, and while they are establishing themselves. Every one of them has seen years of short crops and hard times in the pioneer period, and great areas of what are now rich States were once sold under mortgages. Rich men, some of them famous in the history of this country, have been broken by land speculation in the United States, and disastrous panics, originating in land speculation, have swept over this country in about every 20 years of its history.

For example, the period of town-lot speculation in our Western States in the latter eighties, culminating in the panic of 1893, is well within the recollections of mature business men. They have not forgotten the scores of savings banks and other financial institutions which were carried down by the weight of farm mortgages in default, or

VIEWS OF MODERN BUENOS AIRES.

Upper: View of the Riachuelo section in the extreme southern end of the city.
Lower: The Avellaneda Bridge over the Rio Riachuelo.

the list of railway receiverships, including nearly all the mileage that had been rashly extended into the new regions. And yet those western farms are selling to-day at prices nobody dreamed of in the boom times. The predictions of the town-lot promoter have not all been realized, but the growth of the country in productiveness and solid wealth has gone beyond the most sanguine expectations.

Argentina, prior to the year 1913, had enjoyed some 10 years or more of great prosperity, which placed it permanently far in advance of its position prior to that period. Whatever speculative bubbles there may have been on the surface of this progress, there can be no gainsaying the depth and volume of the movement, and the causes for it are perfectly clear. Amidst the great industrial development that has been going on in the United States and Europe during the last 20 years, agriculture has fallen relatively behind. One reason for this has been that in the previous 20 years agriculture had forged ahead of the other industries. During the period of railway building in the Mississippi Valley, while that great expanse of fertile lands was being offered practically free for settlement, there was literally an overproduction of the farm staples, with the result that they fell to unremunerative prices, and farming became an almost hopeless occupation. The tide of migration turned from the farms to the cities and ran in this direction until about the opening of the new century.

By this time the cheap and readily tilled lands of the United States were in farms, the growth of the cities and towns began to restore the equilibrium between food producers and food consumers, and the prices of foodstuffs and other agricultural staples, like cotton and wool, began to rise. These were the conditions that opened a new era for such countries as Canada, Argentina, and Brazil, with their great areas of cheap and productive lands. With the rising prices of lands in the United States and rising prices of farm products, capital flowed freely into these new countries to build railways and bring the raw lands into use. It was a natural and wholesome movement. The world wanted, and still wants, cheaper food and cheaper clothing to restore industry to its proper balance, and for these products South America has capabilities that for all present purposes we may consider limitless.

In 1895 the land area under cultivation in Argentina was 12,230,000 acres, and in 1913 it was about 57,000,000 acres. No longer ago than 1900 the total exports of Argentina, valued in the gold peso, were $154,600,000, and the total imports $113,959,000. From these figures they have mounted steadily upward until in the year 1913 they aggregated, respectively, $485,505,547 and $421,352,542, an increase of over 300 per cent. In the same time the railway mileage has been doubled. Since 1895 the population of the country has risen from 4,000,000 to 8,000,000, and of the city of Buenos Aires from 663,854 to 1,585,000. Such gains as these, of course, give occasion for more or less speculation, but the increased productiveness and buying power of the country and the vast possibilities of the future are facts of real significance.

Against its rapid increase in wealth Argentina has a large foreign debt for its railways, public works of various kinds, and private capital loaned or invested. The London Statist recently estimated the British investments at about $1,450,000,000, French investments at nearly $400,000,000, and German investments at about $300,000,000, including the shipping in the Argentine trade. Investments of this class have been largely increased during the last 10 years, and not only have they added greatly to the productive powers of the country, but the expenditures in construction have been a very important factor in the prosperity that has prevailed.

As an example of this railway expansion the Buenos Aires & Pacific system may be named, which, in connection with the Chilean Trans-Andine, provides a transcontinental road. The Buenos Aires & Pacific system 10 years ago was operating 791 miles of road, and now has 3,473 miles in operation. For its fiscal year 1903–4 the gross receipts were $4,795,000, and for the fiscal year 1913–14 they were $24,405,000. Notwithstanding this increase of mileage, largely into new territory, and the unfavorable

OLD METHOD OF HARVESTING IN ARGENTINA.

"In 1895 the land area under cultivation in Argentina was 12,230,000 acres and in 1913 it was about 57,000,000 acres." (George E. Roberts, in "Economic Conditions To-day in Argentina," in the December number of *The Americas*.)

HAULING WHEAT TO MARKET IN ARGENTINA.

"The world wanted, and still wants, cheaper food and cheaper clothing to restore industry to its proper balance, and for these products South America has capabilities that for all present purposes we may consider limitless." (George E. Roberts, in "Economic Conditions To-day in Argentina," in the December number of *The Americas*.)

REAPING THE HARVEST IN ARGENTINA.

"With the rising prices of lands in the United States and rising prices of farm products, capital flowed freely into these new countries to build railways and bring the raw lands into use." (George E. Roberts in the December number of *The Americas*.)

business conditions of the last year, the system was operated last year on a basis of 62.63 per cent of its receipts, meeting all fixed charges and the dividends upon its preferred stock. All of the new lines have not done so well, but there is nothing in the situation that does not seem familiar to anyone who knows the history of the railways of the United States. The railroads have been built ahead of the population, but in a country capable of supporting an ample population to make them eventually remunerative.

One of the best results of the period of prosperity was the placing of the monetary system of the country definitely upon a gold basis. Prior to 1899 the country had an irredeemable paper currency, which fluctuated violently in value from one season of the year to another, so that great uncertainty attached to all international transactions. In a country which sold so large a proportion of its products abroad and bought so much abroad, this condition was very injurious. In 1898 the first steps were taken toward giving this currency a fixed value in gold by establishing a gold-conversion fund. The Government has made certain contributions to the fund, but most of the gold reserve has been imported and deposited by the banks in exchange for the Government currency. Since 1899 the Government has abstained entirely from the dangerous practice of issuing paper money to pay its current expenses, but has financed itself by borrowing, when borrowing was necessary, in a regular manner. The stability of the monetary system, therefore, has not been disturbed by treasury deficits, and as the result of expanding exports and favorable trade balances the gold reserve grew steadily until at the close of June, 1913, it stood in round numbers at $264,000,000 Argentine gold.

When the conversion fund was established, the question of whether the paper money then in circulation should be redeemed at its face value or at the average gold value at which it had been circulating for years was carefully considered, and the latter policy adopted as the most equitable and practical. To have suddenly doubled the value of the money that had long been in circulation would have not only cut in two the current scale of commodity prices, but in effect doubled every item of outstanding indebtedness. In pursuing the policy adopted the Government followed the example of Russia and Japan, which a few years previously reduced the value of their monetary units in resuming specie payments. The redemption rate of the Argentine paper peso was fixed at 44 centavos, or 44 per cent of the value of the gold dollar. The value of the latter in United States money is 96.5 cents. The convertibility of the paper money has been regularly maintained from the establishment of the conversion fund down to the outbreak of the present European war, when for prudential reasons it was temporarily suspended.

As the fund stands at $221,000,000 and the demand for agricultural products is certain to throw the balance of trade in favor of Argentina in the near future, there is little reason to doubt that gold payments will soon be resumed. The fact is, that in proportion to its volume of foreign trade, or of currency in circulation, the gold reserve of Argentina is larger than that of the United States or any other country.

It is a fact to be emphasized that for 15 years the currency of Argentina has had a fixed meaning, and that it has been held as steadfastly to that meaning as the currency of the United States. No doubt this fact, together with the fidelity with which the public obligations of Argentina have been observed, has had much to do with the free movement of capital into that country since 1900. * * *

The fundamental strength of Argentina's position is that her products are commodities that the world must have. The fact is that her reinforcements of foodstuffs and raw material are just in time. There is no surer basis for commerce or for investments than these. The world will send its ships to the River Plate for all the grain and meat and wool that can be piled upon its banks, and the people who produce what Argentina wants to buy will make no mistake if they are on hand with their goods.

Guayaquil, Ecuador's Commercial Capital, in the December number of the Pan American Magazine, is an excellent description of this important Ecuadorian port, as witness the following excerpts:

Guayaquil, the largest port and the chief commercial city of Ecuador, is located on the west bank of the River Guayas, about 70 miles from the sea, in a splendid situation, at the end of deep-water navigation, and at the confluence of a number of rivers that spread over much of the country that lies to the westward of the Andes. * * *

Rounding a bend in the river we pass a number of shipbuilding yards and factories, and then, as our steamer slowly draws up to her anchorage, the whole of the busy water front is revealed to our view like the unrolling of a scene in a panorama. Backed by low hills, the city lies on a piece of level ground in an open and beautiful situation, stretching for several miles by the side of the river, which is at this point more than a mile wide and deep enough for steamers of considerable size. The whole of the water front is occupied by jetties and piers, where craft of many different types load and discharge their cargoes, the twin spires of the cathedral and numerous churches stand up, white and gleaming, above the roofs of the houses, fine buildings face the water, and on a wide thoroughfare between them and the water streams of traffic pass to and fro.

The first impression of Guayaquil is that it is a large and busy place, with considerable local and foreign trade—an impression that is fully confirmed by closer acquaintance. The city is laid out in squares with streets running parallel to the river intersected by others at right angles to it, buildings are large and in good style, and there is a general air of businesslike activity. The streets, well cambered and paved with blocks of gray stone, are remarkably wide, many of them are lined with trees, and the whole city has been laid out in accordance with modern ideas with decidedly good effect. * * *

A walk through the busier streets shows that there is considerable activity in the city in both wholesale and retail trades. There are many large offices and stores, the latter exhibiting splendid stocks of goods behind their big plate-glass windows. Commerce and trade are chiefly located on the water front and in the streets in that vicinity. The Malecon, one side occupied by large commercial houses and the other open to the river, though no wider than other streets in the city, has room for three street-car lines (one of them electric) and a double railroad track without incommoding the ordinary street traffic. All along the river side piers are built out over the green bank, connecting with floating landing stages where cargo is landed from all kinds of small craft, river steamers, sailing vessels, lighters, and cayucas, to be transferred to the railroad for conveyance to the customhouse or carried to nearby warehouses. Out on the river ocean steamers lie at anchor, tugs and motor launches race along close to the water's edge, steam ferryboats slowly plow their way across the river from Duran, the terminus of the Quito Railroad, and cayucas are dexterously paddled in and out among the piers to escape the effects of the swift tide. Life and movement are incessant, and the busy scene, on water and on land, well illustrates the commercial activity of the city.

The three streets running parallel to the Malecon are just as full of business as the water front, and here we find the largest banks, many commercial houses, and large stores. These thoroughfares for a great part of their length are of even greater width than the other streets in the city, comparing very favorably in this respect with streets in the finest cities of Europe and the United States. The Calle Nueve de Octubre is rendered conspicuous by its long avenue of ficus (called in Spanish "higuera"), sturdy trees, with gnarled stems, bare up to a height of about 10 feet and then spreading out into a thick, bushy top. These tops have all been trimmed to a cylindrical shape, and as the trees are of very even growth the effect is neat and regular

to a degree. This is not by any means the only avenue of trees in Guayaquil, but it is the best and most remarkable. * * *

The chief business in Guayaquil is, of course, the export of cacao, for Ecuador is one of the greatest producers of this valuable food product in the world, the welfare of the city, and, indeed, of the whole country depending almost entirely on the cacao crop and the market. Most of the firms engaged in this trade have their offices and warehouses on or near the Malecon above the Calle Nueve de Octubre, conveniently situated for receiving the product from the river craft that bring it down from the interior and for shipping it away to Europe and America, while the broad streets serve as drying grounds for the reddish-brown beans.

Guayaquil is particularly well provided with public squares and open spaces such as the Plaza Bolivar, containing a fine bronze equestrian statue of the great libertador, the Plaza Pedro Carbo, near the Merced Church, and the Plazas Montalvo, Rocafuerte, and Sucre. All of these are well kept and bright with roses, many-colored crotons, and other tropical plants, besides having excellent bronze statues of men celebrated in the history of the country. * * *

The city has an excellent street-car system, partially electrified, with lines running across and from end to end of the town through all the principal streets. It is well worth the visitor's while to make a trip along the Calle Industria, leading from the center of the city southward to the district where the chief local manufacturers and shipbuilding yards are located, for Guayaquil has many other industries besides those directly connected with the cacao trade. * * *

Although Guayaquil is only about 2° south of the equator the climate is very much cooler than might be expected, the dry season, lasting from May to December, being the best part of the year. Visiting the city during the month of August the writer found the days agreeably cool and the nights almost cold; even during the hottest part of the day, from noon to 4 o'clock, a cloth suit could be worn without any discomfort. This surprising coolness is due to the effect of the Humboldt current, a stream of cold water from the Antarctic regions that, flowing northward along the west coast of South America, makes a considerable reduction in the temperature. Guayaquil, though some distance from the sea, is yet near enough to get some of the benefit from this cold current.

As an example of the progressive spirit of the Ecuadorians nothing could be more illustrative than the scheme for augmenting the city water supply, laying down a modern system of drainage and sewerage, improving the sanitary arrangements in general, and for street paving that is now being put into execution. When the entire project has been carried out Guayaquil will be one of the healthiest, most beautiful, and attractive cities on the west coast of South America. * * *

The coolness of the summer months, the open position of the city, and the plentiful supplies of excellent fish, fruit, and vegetables to be obtained, go far toward making life in Guayaquil pleasant and enjoyable.

The Malecon provides a favorite parade in the late afternoons for the owners of automobiles (there are many in the city), while for the less wealthy inhabitants open street cars are run along the same thoroughfare during the evening hours. Motor boating on the wide, smooth river is a popular pastime, one enthusiast owning a very fast hydroplane, which may be seen dashing over the surface of the water in a cloud of spray at a tremendous speed, the great stretches of water, both above and below the city, offering boundless opportunities for those who care for sports of this nature.

Most advantageously situated for both interior and exterior commerce, with a large area of fertile country behind it and a deep, wide river leading to the open sea in front, Guayaquil is a city to be reckoned with in South American commerce, while its wide streets, fine buildings, and distinctive air can not fail to make a favorable impression on the visitor. It is not only a city with a great future but also a city with a well developed and very decided present, all ready and fully prepared for vast increases in its trade.

A Long Search for Rubber, by W. T. Walsh, in the January, 1915, number of Technical World Magazine, is an account of the attempts by chemists to produce synthetic rubber in such quantities and at such prices as to compete with the natural product. That such attempts have not as yet been successful may be gathered from the following excerpts of Mr. Walsh's article:

It was only a year or so ago that the results obtained by chemists encouraged industry to believe that the day was not far distant when the laboratory would supersede the rubber plantation. Artificial or synthetic rubber was to satisfy all our present commercial needs and to take charge of a hundred newly-created demands. That, at least, was the hope of the enthusiasts. In their mind's eye they saw the doom of the natural product written large on the wall. They foresaw the rubber forests of Brazil and the Kongo revert to their primeval state. If these enthusiasts had been as good prophets as they were visionaries, they might have forecast the war and the depredations of the *Emden*, and have pointed out that artificial rubber produced in our own laboratories would in that crisis render us industrially self-sufficient.

But they made no pretense to the power of prophecy and their vision was clouded. Rubber can not be called into being by a few hocus-pocus words muttered by a long-haired, thick-spectacled individual over a chemical retort. According to Dr. Gerlach, of Hanover, Germany—a scientist deeply interested in the manufacturing end of the rubber industry—20 years must elapse before the artificial can compete successfully with the natural product. It is not sufficient that the chemist bring the cost down to that of the commodity now on the market. In order to manufacture artificial rubber on a commercial scale the capitalist must have full assurance that he will not be undersold by the supply from the forests and plantations. But he has not that assurance. Indeed, the chemist does not pretend to create, as yet, a practical commercial product. His synthetic rubber is a success, just as a surgical operation is sometimes a success, though the patient dies. But in neither case are the relatives or the capitalists satisfied.

Yet in spite of the tremendous difficulties in the way of producing artificial rubber there are hundreds of patents for processes registered both in this country and in England, and probably hundreds of others will be registered before the long-sought end is attained.

There are two errors the general public labors under with reference to rubber. The first is that the forests are being destroyed more rapidly than they can be grown. The second is that the price runs into the dollars per pound. It is true that four years ago the best Para rubber (so called from the district in Brazil where it is produced) fetched $3 a pound in the London market. That was because the demand for rubber for automobile tires and golf balls had received a tremendous impetus—a fact which enabled the Brazilian producers, who practically had a monopoly on the output, to fix prices arbitrarily. * * * The great demand stimulated competition. Big shipments began to come in from Sumatra and other parts of the East Indies. The bottom dropped out of prices. In less than three years' time they fell to 50 cents, although they presently rose again.

The opening up of the new plantations in the east practically ruined a number of investors—or, more properly, perhaps, speculators—for rubber quotations are exceptionally sensitive to every commercial breath that blows. The price is remarkably unstable. It costs from $100 to $130 to bring an acre of rubber trees into bearing, and rubber can not be produced profitably when it sells at only 50 cents a pound. Even the well-established rubber industry of Brazil, which depends on the native forests for its supply, is handicapped by an export tax of 24 cents a pound. This leaves no appreciable margin for profit when prices are running low.

Before industry was compelled by the temporary high prices to turn to the far eastern fields it was thought that the East Indian product was inferior to that of South

A BRAZILIAN RUBBER GATHERER.

"The basis of natural rubber is a milky fluid called latex. From this is extracted the indiarubber, or caoutchouc of commerce. The purpose of this latex in the tree is not known. * * * The fluid is obtained by tapping the trees. If this is improperly done the tree may die or the full season's flow may not be obtained." (W. T. Walsh, in "A Long Search for Rubber," in the January, 1915, number of *Technical World Magazine*.)

America. It was merely used as a substitute for or an adulterant of the best Para grades; but with the importation of the native Brazilian tree (*Hevea brasiliensis*) into the eastern field under proper cultivation a genuine rival to the South American product has unquestionably been developed. The public was mistaken when it believed that a rubber famine was imminent, that prices were high on that account, and that the only salvation in sight was artificial or synthetic rubber.

These statements do not mean, however, that there is no need of reform in the rubber industry, or that the successful synthetic chemist would not be honored and recompensed. If a steady production of the best grade could always be assured, if the uncertainty in market quotations could be eliminated, every man who uses the raw rubber in this business would be tremendously benefited. * * *

The basis of natural rubber is a milky fluid called latex. From this is extracted the india rubber, or caoutchouc of commerce. The purpose of this latex in the tree is not known. Some scientists believe that it guards the tree from insects or parasitical plant growths. The fluid is obtained by tapping the trees. If this is improperly done either the tree may die or the full season's flow may not be obtained.

In the synthetic process—the process of the laboratory—the scientist uses as his basis isoprene. Isoprene is found in rubber, and if it stands long enough will of itself turn to rubber. Chemists have been looking everywhere for some cheap source of isoprene. Isoamyl alcohol, which is obtained by the fermentation of potatoes and similar starchy substances, at the present time gives promise of most satisfactorily meeting the problem; but the method of producing rubber in this manner is indirect and quite costly, and until the chemists have cut the cost to a point appreciably below that of the natural product and can supply it in quantities as wanted, the world must continue to depend for its best rubber upon the Para region of Brazil or the plantations of Sumatra.

Art that is Real and American, by Gutzon Borglum, one of America's greatest sculptors, in a recent number of The World's Work, is a scathing arraignment of the slavish subservience of so-called American art lovers. The article is a masterly plea for the independence of American art, for a new freedom in its intellectual attitude, and for the substitution of American ideals for those of a frayed antiquity which have no connection with American life and its heroic struggles for four centuries. Just as America fought for and achieved political liberty, freedom of conscience, and independence in thought, so should the nations of the western world fight for independence in the expression of their emotions in the world of art. In this struggle for artistic independence Borglum is one of the greatest leaders both in his wonderful work and in the propaganda he conducts by means of his trenchant pen. What he writes of the pseudo art lovers of the United States will doubtless apply with equal force to many of those of other American countries, and the following excerpts from his somewhat caustic introductory paragraphs are well worthy of reproduction:

To drop a plumb line into the depths of life, to find thereby the greatest emotions common to all mankind and to express them so that all mankind will understand the expression—this, I think, is what art is for.

More than this, art in America should be American, drawn from American sources memorializing American achievement.

Opposed to both of these fundamental facts stand untold wealth with unknown resources which annually create a market for the established accoutrements of ancestra

STATUE OF ABRAHAM LINCOLN.

One of Gutzon Borglum's remarkable masterpieces which adorns the city of Newark, N. J. In realistic conception and finished execution said to be one of the best examples of American sculpture.

respectability, seeking ancient evidence of every conceivable sort. Scarcely a tomb of antiquity has not been coveted, searched, or sacked, to meet the rapacity of our dollar kings and queens.

Anything old enough to fall to pieces becomes gilt-edged security to this annual flood of art lovers. So great has been the need that hardly a respectable home of ancient standing in Europe has not been tempted and levied upon for old personal belongings. Business men and art students jumped into line and into the manufacture of these counterfeit certificates of respectability. The story is one of the black pages of this New World's growth. It is so filled with make-believe and counterfeit that it may be said that this has been the greatest ill that has come to our esthetic life We are blind, false, and utterly incapable of thinking alone, standing alone, expressing ourselves frankly in matters affecting our personal life, tastes, and desires: and in turn are mocked by the people who have dumped upon us their second-hand belongings. We are told by the "antiquarians" that "we are not artists"; "we haven't the right to think"; "they will think for us." They tell us what kind of houses we must live in and how to furnish them. Individual tastes, habits of occupant, and such foolish whims are ruthlessly brushed aside. * * * I must confess I do not sympathize with the bank accounts which are levied against to build up and keep up this masquerade. I do regret deeply the reaction that success of this sort has upon the young art students, who often innocently fall victims to this lucrative trade of make-believe. We see incoming ships loaded with the second-hand or counterfeit art of the Old World. We see great enterprises buried under this levy from Egypt, Greece, and Rome. We see the meaningless garland of the beaux arts strung from cornice to cornice and many structures in this land tangled with traceries borrowed from other lands. We see our city buildings, our State and national buildings, marked and counterfeited by the symbols of peoples 2,000 years dead, and splendid structures built into heroic lines to meet the volume of trade, fretted, ruined by the trinkets and gewgaws plagiarized from the Middle Ages. We see façades appealing for some real symbol of the life and soul of the institution, and in its place a fat, coarse ballet girl with an armfull of hay or a lapful of pumpkins, labeled "Ceres," and in another place the same good lady as "Blind Justice," with an apothecary's scale and a Roman sword.

Against this, all that is honest, all that is individual, all that is sincere, revolts. Reverence, yes, the veriest respect for one's common honesty, vague though that may be, breeds rebellion—rebellion against homes made up with the spoils of counterfeits of some one else's home. There is something in this willingness to dine under a foreigner's coat of arms in an Italian palace in Nebraska or with heraldic nobility in Rhode Island that robs one of one's true nobility. There is such confession of incompetence that esthetics, and all the ennobling impulses that beget art, seem gone.

In regard to the substitution of American ideals and American subjects for those of Europe and the ancient world, he writes:

We have in these 400 years of colossal youth lived and relived epics, ranking with those of ancient Greece and Rome. And still the story of it all has not been put down and has yet to be written. Those of us who can afford it steal and borrow and beg the arms, the dress, the emotions of Greece and Rome. Too often we hang their rotting trophies upon our walls, ignorant of their origin, unacquainted with their meaning, and not even sympathetic with the emotions that produced them, bent only upon the paltry respectability that their presence argues. * * *

We have not begun as a people to realize that things we desired honestly—liberty of conscience, freedom from European Governments, and from the stain of slavery—were things to be proud of; things to sing about, to talk about, to write about, to build around and to build into our civic memorials; that they are ours and that they belong to no one else; and that these things and these things alone make us immortal, make

Courtesy of The World's Work.

THE MARES OF DIOMEDES.

This remarkable group, which is to be found in the Metropolitan Museum of Art, New York City, first won for Mr. Borglum international fame and recognition. The central idea is that of human mind directing wild brute force. The taming of the mares of Diomedes was the last of the Seven Labors of Hercules.

us the envy of the world. If we have any art of any kind in song, in letters, in color, in stone or bronze, it should tell about these things; it should write them in bold lines annually across the page of our own history. It should imprint them upon our Federal, State, and city institutions. In fact, these great principles which make us a people should themselves conceive and shape and bring forth the institutions themselves, and they should suggest and resuggest the great life that we have begun and are living.

That Borglum practices what he preaches is best evidenced by some of his greatest works. As examples, may be cited his colossal head of Lincoln in the rotunda of the Capitol at Washington; his equestrian statue of Gen. Sheridan, ornamenting the center of Sheridan Circle in Washington; and his great group, "The Mares of Diomedes." The title of this extraordinary piece of sculpture is misleading. The sculptor really utilized a subject from the great western plains of the United States, the leading off of a herd of wild horses. The method is: Mounting a tractable horse, entering the wild band, and riding about quietly until the band follows; then leading the entire band away. According to the sculptor's own statement, he "stripped the horseman of garments, both to delocalize him and also to show the play of a fine nude figure on a nude horse. The name is a convenience, the motive of the group, mainly intense controlled action."

Helps and Hindrances to Trade in South America, by William Cameron Mackay, in The Black Diamond of December 12, 1914, is an analysis of the coal trade of the southern continent. Mr. Mackay has had seven years' experience in buying and selling coal in South America, and his thorough familiarity with the present conditions, clear exposition of the entire situation, and the conservative but hopeful views as to the future development of the trade between the west coast of that continent and the producers of the United States, make his article of peculiar value to those interested in this great industry. The following excerpts reproduce the portion of the article dealing with the west-coast situation:

The fact that the opening of the Panama Canal has coincided with the outbreak of the European war has brought about a condition in the coal trade which might have been caused, to a lesser degree, by either of the above-mentioned incidents.

Now that the Panama Canal is open to ocean commerce, United States coal-producing ports are brought many thousands of miles closer to the great coal-consuming centers of the west coast of South America.

The distance between New York and Valparaiso and between English and Australian coal ports and Valparaiso are as follows:

	Miles.
New York to Valparaiso via Panama	4,633
New York to Valparaiso via Magellan	8,380
Liverpool to Valparaiso via Panama	7,207
Liverpool to Valparaiso via Magellan	8,747
Sydney, New South Wales, to Valparaiso via Pacific	6,257
New Orleans to Valparaiso via Panama	4,054
New Orleans to Valparaiso via Magellan	8,796

From the above figures it will be seen that all coal coming from Europe will continue to use the Magellan route just as surely as all coal from the United States will pass through the canal. The saving in time in the first instance will not be sufficient to deflect British coal freighters from the longer route to the shorter and to compensate for payment of tolls.

Even with the present excessive freight rates to Valparaiso, American coal can be shipped to and sold in that port at a lower figure than either Welsh or Australian coal. This is made possible by the prompt means of transport afforded by the new route, which will allow a ship to carry a much larger amount of tonnage per annum than those vessels using the longer route. This will have a beneficial result upon freight rates from the coal merchant's or coal user's point of view. This would have a very important effect if the colliery owner were also a shipowner or were able to secure favorable time charters.

A vessel carrying American coal to Valparaiso should make six journeys in the year as against five by a boat trading with Australia or four by an English vessel.

Of the countries in South America served by the Pacific Ocean, Chile is, for many reasons, the best for the initial effort of the American coal exporter, and Valparaiso is the only center in Chile from which this trade can be controlled efficiently. The reasons for this are varied.

First on the list might be mentioned the fact that the steamship lines plying upon the west coast have their headquarters in that city.

In the second place, it is close to Santiago, the capital of the country, where all contracts of a government nature are decided. It is also the port of delivery for the bulk of the coal used upon the State railways and naval ships.

In addition, it is the headquarters of the great nitrate industry of Chile; all the chief nitrate producing "officinas" have their principals in Valparaiso, where the negotiations for the purchase of materials of all classes are conducted.

In Valparaiso, then, the coal merchant is in direct touch with the principal steamship, railway, nitrate, and commercial interests of all Chile. It is the most convenient place of residence for firms desirous of doing business with Bolivia or Peru.

The American merchant will have three competitors to meet in this field. We will consider in turn the difficulties to be faced and the general methods of overcoming these difficulties against each.

1. Welsh or British coal of any denomination—588,526 tons of this class of fuel were imported into Chile during 1913. This coal is used principally in the nitrate "officinas" and upon the railways, but is not greatly favored by shipowners on account of the exceedingly high price, which ranges from 42 to 45s.

Welsh steam coal has been purchased at as low a price as 37s. 6d. in Valparaiso, but this is an unusual figure.

During the first 9 months of 1914 there has been a decline of almost 90,000 tons in the import of this article, of which about 40,000 tons decline took place in August and September, due principally to the closure of so many of the nitrate-producing plants.

This coal has to carry much higher freight rates than that from America, and the difference in heat-producing qualities is not sufficient to compensate for the difference in price at port of destination. When conditions have readjusted themselves to the altered state of affairs caused by the European war, Great Britain will, in all probability, not be in a position to fill foreign orders for coal to the extent she did formerly. So long as the American coal shipped to Chile maintains the high level of quality which it claims, and which puts it almost on a par with Welsh, this product is in a position not only to capture, but to retain, the market lost by England. There should be a market for at least 250,000 tons per annum to replace shortage from England in future.

2. Australian coal: About 1,500,000 tons of Australia's output is sold through offices in Valparaiso. According to recent information, the Commonwealth has placed

an embargo on all coal exports. This would seem to indicate that there will be an entire cessation of coal shipments over the Pacific from Australia to Chile. Some two years ago a special commissioner, appointed by the Australian Commonwealth to make an exhaustive study of the effect of the opening of the Panama Canal upon Australia's coal trade, reported in a manner most adverse to the product of New South Wales. He stated as his opinion that Australia's coal trade with North and South America was doomed, except possibly at Valparaiso. But even there he did not see how his country could compete with America. The American article was superior in calorific qualities and could be delivered on board purchasing steamers or on shore at a lower figure and still allow a margin of profit.

Allowing for present shrinkages of consumption, there should be a market here for 500,000 tons, in addition to the 300,000 tons now being sought by the Chilean Government to replace a similar quantity formerly purchased from Australia.

In passing, it may be mentioned that Bolivia takes Australian coal to an annual value of about $256,000 (1913), the greater portion of which could be supplied now by the States.

Australian coal varies in price in Valparaiso from 31s. 6d. to 37s. 6d., although the writer has known of purchases having been made at 26s., 27s. 6d., 28s. 6d. These figures are very low, however, and 35s. to 37s. 6d. may be taken as the average market price, with 32s. to 33s. as a contract price for larger quantities.

3. The third competitor is Chilean coal, and probably in the future Peruvian coal, although the latter does not figure at present in the market.

About 20 per cent of Chilean coal * * * is used on board the various steamers plying upon the west coast, and can be placed alongside and trimmed into bunkers at a price varying from 22s. to 24s. per ton. Lots have been bought at 18s. 6d. and 19s., and for a considerable time a contract was in force to supply a large steamship company at 21s.

On account of the cheap price it is highly improbable that an outside competitor will capture any of this trade unless the American merchant can do so by reducing his price to such an extent as to permit of his coal being sold in Valparaiso at 27s. 6d. to 28s., or even lower. The remaining 80 per cent of Chilean coal is used upon the local railways, and no outsider could compete for this trade in price even were the railways willing to abstain from the purchase of local coal. This they are not in a position to do, as the Senate insists upon the use of the native product as far as possible upon the State railways. * * *

Native Peruvian coal has been sold to steamships at 25s. per ton, but I have not known of many purchases of this nature. The Cerro de Pasco Mining Co. uses 170,000 tons annually, which it extracts from its own mines, while in Callao large quantities have been imported from Australia. This is a market that the United States should be able to annex entirely, as New South Wales coal was sold at 37s. to 40s. and German coke at 42s. per ton.

At a conservative estimate there should be a market for 1,000,000 tons during 1915, consequent upon the shrinkage which may be expected to take place in English and particularly in Australian exports, and we have seen that prices in Valparaiso averaged for Welsh coal 40s. to 45s. per ton of 2,240 pounds or 1,015 kilos; Australian, 35s. to 40s. per ton of 2,240 pounds; Chilean, 21s. to 24s. per ton of 2,240 pounds.

Does the American colliery owner intend to make an effort to capture this trade, and is he going to adjust his prices in such a manner that he can bid successfully and capture the market?

The foothold obtained now would enable the coal merchant of the States to build up a permanent and profitable trade connection for himself. Once he has become established neither the Australian nor the Welsh product can enter the contest and hope to obtain any great measure of success, even when the devastating influence of the war is removed.

Mr. Mackay concludes his article with a short sketch of the most efficient methods whereby the trade may be handled, and gives many valuable suggestions for the benefit of the coal operators of the United States who are seeking foreign markets for their product.

A Pan American Opportunity, by Harry Otis Sandberg, of the Pan American Union staff, in The Cosmopolitan Student for January, 1915, is a plea for special effort to promote an interchange of university students between Latin American countries and the United States. Mr. Sandberg writes:

A Pan American era is dawning upon us in all its strength and vigor. Political and commercial influences are more earnest and more zealous than ever before in their efforts to realize the highest achievements of this development. Educational and intellectual interests must also share in this activity if we are to enjoy the fullest benefits from this more intimate relationship.

The Associated Cosmopolitan Clubs of North America, therefore, have before them a splendid opportunity to play an important part in this great movement. Within the last few years there has been a noticeable increase in the students from Central and South America to the United States, and the tide is rapidly turning away from Europe. Recent figures show that the United States has more than four times as many students from Latin America as France. The total number of such students in 1912 and 1913 studying in local colleges and universities was more than 500. This number should be doubled, yes, trebled, within the next few years. By receiving the young men from Latin American countries into the fold of the student body, by making them feel welcome and entirely at home, this total can be reached. On the other hand, students both in course and graduates should go forth from the United States in increasing numbers to the old and historic institutions of learning in the southern continent. It is indeed significant of the time-honored civilization of Latin America when it is recalled that San Marcos University, at Lima, Peru, and the University of Cordoba, in Argentina, were flourishing many years before Harvard, Dartmouth, or Yale came into being in this country. Toward the exchange of students the Pan American Union and other agencies have been incessantly at work, and considerable progress has already been made. A number of colleges, universities, and technical schools in the United States are offering special inducements to students from Latin America, and no doubt this action will be reciprocated by the institutions of those countries. In fact, Guatemala has already provided a number of scholarships for students from the United States.

In promoting this closer international contact between the students of the American Continent, it is but just to state that the Associated Cosmopolitan Clubs have exerted a strong influence; but there is yet more work to be done. Especially, in view of present conditions, it would seem highly advisable that the Associated Cosmopolitan Clubs should bend its best efforts to develop a still greater Pan American spirit in all the colleges where branches of this organization are established.

The following suggestion is worthy of consideration on the part of the Associated Cosmopolitan Clubs of North America, inasmuch as such an evening would do much to arouse interest in a field which is now engrossing more attention among thoughtful people in the United States than ever before:

The writer would propose that a Pan American night be included in the program of activities for the coming year, and that each chapter of the Cosmopolitan Clubs arrange an appropriate program for the occasion. Little-journey talks to the various

countries and a recital of the glorious achievements of Latin American heroes, who, in number and interest, compare most favorably with those of the United States and Europe, might be made part of the evening's entertainment. A brief résumé of Latin American history would also prove highly interesting, for who can read the fascinating history of these countries without being thrilled by the deeds of such leaders as San Martin, Bonifacio, Juarez, Hidalgo, Marti, Artigas, and Bolivar, names enshrined high among the world's array of heroes? Essays on the great statesmen, savants and scholars, would reveal facts and data surprising to the students. The tremendous influence that these countries have exerted in the development of international law would be a revelation. If music is available, the inspiring national hymns of those countries would add to the enjoyment of the evening, and the stirring strains of the Pan American hymn, a composite melody embodying the dominant themes of the various national airs, would make a fitting climax. As special features, stereoptican views illustrating the travel talks might be included, and if, perhaps, the chapter could secure some special speaker on Pan America, the success of the evening might be greatly enhanced. It even occurs to the writer that the week of February 22 might be an appropriate period for such a celebration. Nearly each one of the 20 independent Republics of the Western Hemisphere has written its constitution on the Constitution of the United States, and their heroes have received inspiration and impetus in their struggles for independence from the deeds of immortal Washington.

New Faunal Conditions in the Canal Zone, by H. E. Anthony, in the October-November number of the American Museum Journal, describes the new conditions relative to faunal and floral life in the Zone, resulting from the damming of the Chagres River and the forming of Gatun Lake. The article is illustrated by numerous photographs by the author and Mr. George Shiras, 3d, whose remarkable work in flashlight photography of animal life is well known, and under whose patronage this expedition was undertaken. The following paragraphs from Mr. Anthony's article will give an idea of the conditions which now obtain in the Zone relative to its animal life.

As Gatun Lake was the center of investigation, it was planned to work from a houseboat as a base camp with a launch and small boats for side trips. Accordingly a boathouse was made over by a few alterations, but only after considerable time had been spent in trying to secure something available for the purpose. The houseboat was so low in the water that she could be towed only in a calm sea, a condition of the lake only rarely met with, and at the best the launch could make but slow time pulling her. Late afternoon of March 6 saw us leaving Gatun with the houseboat and by 3 o'clock the next morning we were tied up at the head of a waterway or trocha that branched off from the Rio Trinidad. This was our main camp and we hoped to be able to work the undisturbed jungle from here. * * *

It was at this spot that we made the acquaintance of the largest of the Panamanian monkeys, the "black howlers." Frequently their queer booming, roaring, howl echoed through the jungle, a call that carries for long distances. They howl oftenest just before or during a rain storm and the natives thus look upon them as weather prophets. Upon one occasion I stood almost under some trees through which a troop was passing, while the first big preliminary drops of a sudden shower pattered upon the leaves about me. The volume of sound that issued from the black shaggy throats was so great and so suggestive of a large animal, a lion for example, that I found it hard to reconcile myself to the actual facts. I felt a pang of regret at silencing one of the "howlers," but as a specimen was needed I shot one of the foremost and heard him crash through the limbs to the ground. * * *

Courtesy of The American Museum Journal.

LAKE END OF GATUN LOCKS.

In the background may be seen Gatun Lake. Three different stages in filling the locks are shown, the lock at the left being empty, the one in the lower right-hand corner half full, and the one in the upper right corner full. Four locomotives similar to the one shown in the lower right corner are used in towing the ships through the locks.

Courtesy of The American Museum Journal.

WATER FRONT OF PANAMA CITY.

Here the boats come into market, in the early morning soon after daybreak, loaded with fruit and vegetables from the neighboring islands.

Courtesy of The American Museum Journal.

THE HOUSE BOAT ON GATUN LAKE.

In the zoological expedition organized by Mr. George Shiras for the purpose of obtaining photographs by flash light of the animal life of the Panama Canal Zone the house boat formed the base camp from which trips were made by launch or small boat along rivers which heretofore have been inaccessible owing to shallow water. The boat had sides of cheese cloth and copper screen to keep out mosquitoes.

Courtesy of The American Museum Journal.

FLASH-LIGHT PICTURE OF PACA.

The paca, one of the largest of existing rodents, is an animal of nocturnal habits and therefore can be photographed only by means of flash-light apparatus at night. Note in the animal's mouth the mango which was used as bait. This is one of the game animals of the natives, who call it conejo pintado, or spotted rabbit.

Courtesy of The American Museum Journal.

NEWLY FLOODED FOREST ON RIO TRINIDAD, PANAMA

Rivers in the Gatun region have risen, as this photograph indicates. The lake of the region, previously a negligible one, has now an extent of 164 square miles and a depth in places of 70 to 80 feet. In the photograph an iguana can be seen on the upright stump and a white egret on the log at the center.

Courtesy of The American Museum Journal.

SCENE ON THE RIO CHILLIBRILLO, PANAMA.

The Shiras expedition made trips up this river to visit the bat caves. As palms never grow in water something of the extent of the flooding of this region can be judged from this picture showing the partially submerged palm.

A PANAMAN CAYUCA, OR DUGOUT.

These boats are used by the natives for bringing fruit and produce to market, and it is a common sight to see them loaded with sugar cane cut in sections 8 or 10 feet in length.

Other interesting mammals encountered here were the pretty squirrel-like marmoset, the short-haired anteater and several species of opossum, while we were continually wondering at the variety of the bird life and the diversity of the bird songs and call notes. The noisy parrots that shouted in the morning until the jungle rang with their tumult, the grotesque toucans which at times vied with the parrots, the calling of the parrakeets and the peculiar choruslike calls of the Chachalaca, or "wild turkey," produced an impression that must ever be associated with jungle memories. At night mysterious noises were heard from unknown sources and one weird laughing call in particular caused conjecture to run rife, there being as many opinions as there were listeners.

Besides the work done on the Rio Trinidad, several long trips by launch were made up the Rio Chagres, one as far up the river as the launch could ascend and two others up the Rio Chilibrillo to some limestone caves for bats. On these trips it was found that the rising waters had ascended far up the river valleys, which in this part of the region have very little fall, making them navigable to launches where formerly it would have been impossible to take a cayuca or native dugout. Some of these flooded rivers—rivers by courtesy, for in the States these streams would be called creeks—with their banks densely lined by jungle vegetation which met overhead and dropped long vines and streamers into the waters, were very beautiful.

Everywhere we found the forest inundated. In regions early flooded, where the trees were submerged for the greater part of their height, all the trees were dead and leafless with an occasional great clump of orchids, the only green left. Many square miles of the surface of Gatun Lake are thickly studded with dead tree tops of what was at one time splendid tropical forest. In regions of later high water many of the trees were still green and blossoming; especially was this so along the shores where but the lower part of the tree trunks were under water. It is not improbable that some of the more resistant trees may live to a ripe old age with their roots some feet below the surface of Gatun Lake, for some species were found flourishing among their long since dead companions.

Gatun Lake will undoubtedly produce new economic conditions among the natives of the adjacent district. These natives formerly had no other waterways but the few rivers that traversed the interior basin and were available for navigation only to a limited number of villages. Such rivers were the Chagres, Trinidad, and Gatun. Now the far-extending lake shores provide such an accessible waterway that the natives are learning to navigate on lake waters, and every morning their cayucas may be seen lined up at the native market along the lock front at Gatun. Being primarily river boatmen, however, they are yet somewhat distrustful of the lake winds, and do most of their traveling at night when the winds die down. During the dry season—from January to April—the winds blow across the lake toward a northern quarter of the compass, and just the reverse holds true for the rest of the year. This wind at times becomes strong enough to threaten small boats seriously, and at practically all times of the day would be a strong check on the progress of the native dugout that was facing it. * * *

Whenever one left the waters of Gatun Lake the dense, unaltered jungle was at once encountered, and no matter how much its beauty was to be admired from the boat its impenetrability was no less to be deplored. It was useless to attempt to leave the trail without recourse to the machete, the long brush knife of Latin America, and many were the varieties of briars and thorns to be avoided. Once into the thick growth of the jungle the hunter found it necessary to stand minutes in one spot in order to look into all the arboreal nooks and crannies, so many were the possibilities, so many the great orchid-covered limbs and wide-branching trees, and so loath to move the denizens of the jungle. The orchids and epiphytic air plants were very abundant and became so heavy a burden at times as to break down the limb or even the entire tree that harbored them, and not infrequently I witnessed

Courtesy of The American Museum Journal.

THE BLACK HOWLER.

The black howler, the largest of the Panaman monkeys, is looked upon by the natives as a weather prophet, its loud, long, and reverberating howl being most frequently heard just preceding a heavy rain. (Illustrating "New Faunal Conditions in the Canal Zone," by H. E. Anthony, in The American Museum Journal.)

Courtesy of The American Museum Journal.

FLASH-LIGHT PHOTOGRAPH OF AN OPOSSUM.

The particular opossum shown is the commonest species found on the Canal Zone, and by reason of its abundance and its omnivorous appetite it proved a serious obstacle to flash-light photography. Probably 75 per cent of the flashes fired were sprung by opossums. (H. E. Anthony in "New Faunal Conditions in the Canal Zone," in The American Museum Journal.)

Courtesy of The American Museum Journal.

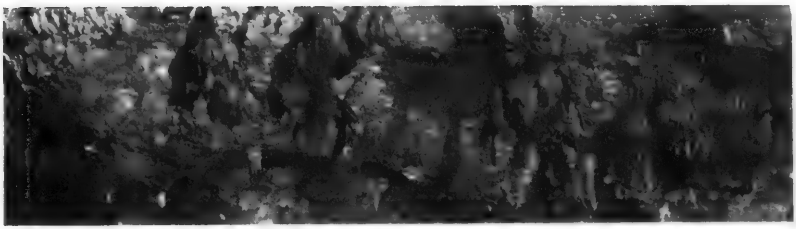
ENTRANCE TO A BAT CAVE IN PANAMA.

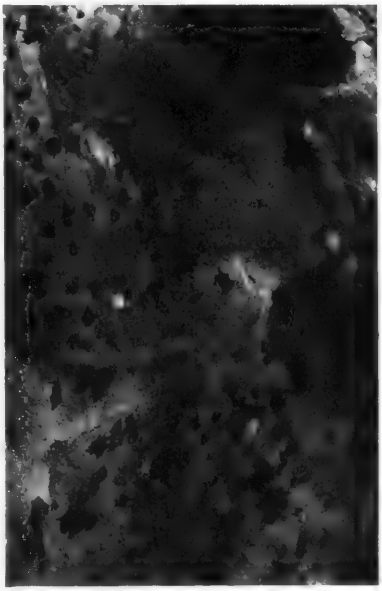
The low entrance to this limestone cave on the Chillibrillo River opens into a series of long corridors and chambers more or less communicating.

Courtesy of The American Museum Journal.

IN THE BAT CAVE.

Showing method of photographing bats by flash light. As the powder used is exceedingly explosive, the expression of apprehension on the face of the operator is not to be wondered at.





Courtesy of The American Museum Journal.

FLASH LIGHT OF CLUSTERS OF BATS.

"The variety shown is one of the largest of South American bats, one specimen secured having a wing expanse of 26 inches. The bats are strong and muscular and always ready to bite," writes Mr. H. E. Anthony. Of the various species of bats there are but two known as blood-sucking bats, which inhabit the tropical and part of the subtropical regions of Central and South America. They appear to be confined to the forest-clad parts, and their attacks on men and warm-blooded animals generally were noticed by some of the earliest writers. It was Charles Darwin who determined one of the blood-sucking species, *Desmodus rufus*, of which he wrote: "The vampire bat is often the cause of much trouble by biting the horses on their withers. The injury is generally not so much owing to the loss of blood as to the inflammation which the pressure of the saddle afterwards produces. The whole circumstance has lately been doubted in England. I was therefore fortunate in being present when one was actually caught on a horse's back." This species is widely spread over the tropical regions of the Americas from Mexico to southern Brazil and northern Chile. It is a comparatively small bat, the head and body about 3 inches long, the forearm about 2¼ inches. The body is covered with short fur of a reddish-brown color but varying in shade. The teeth are peculiar and admirably adapted for the purpose for which they are employed.

the downfall of some tree overburdened in this manner. Once indeed, warned by a premonitory cracking, I was forced to move with considerable speed to escape a flying limb. * * *

The trip resulted in a good series of flashlight photographs of opossums and some of the smaller mammals. The apparatus for "flashing" the animals was set out by some runway or watercourse where animals were apt to pass, and consisted of a mechanism to fire a magnesium flash and at the same time trip the shutter of the camera, which was fastened in a manner to command the trail. A thread attached to a bait and stretched out before the camera fired the flash when the animal pulled it.

Series of the rodents and the smaller mammals were secured for the museum collections, and for the most part are of species not hitherto represented. The time was too limited to secure many of the larger mammals which are found in the Zone.

Railway Expansion in South America, by Frederic M. Halsey, in the December number of Moody's Magazine, deals as follows with the railways of Uruguay and Paraguay:

There are approximately 1,600 miles of railway lines in Uruguay. Nearly all of the operating companies receive Government guaranties. The relatively flat nature of the country makes railway building less expensive than in other South American countries. As of June 30, 1913, the principal railways in operation were as follows (all 4 feet 8½ inch gauge):

	Miles operated.	Gross receipts.	Net receipts.
Central Uruguay Railway	975	$6,216,965	$2,871,925
Midland Uruguay Railway	291	682,112	194,948
Northwestern of Uruguay Railway	[1] 113	[1] 248,585	[1] 124,410
Uruguay East Coast Railway	[1] 78	[1] 176,607	[1] 33,164
Uruguay Northern Railway	71	150,985	54,835

[1] June 30, 1912.

Principal among the railways operating in the Republic is the Central Uruguay Railway of Montevideo, or the Central, as it is commonly called.

The system is operated in four sections, as follows:

	Miles.
Central Uruguay Railway (including Northeastern Line)	271
Central Uruguay Northern Extension Railway	182
Central Uruguay Eastern Extension Railway	311
Central Uruguay Western Extension Railway	211

The main line, which earned during 1912–13 $13,629 per mile, traverses the central portion of the country from Montevideo to Santa Izabel, a short distance beyond the Negro River. The first 50 miles of country passed through is extensively cultivated with wheat, garden products, grapes, etc. En route to Santa Izabel the line passes through the most populous portion of the Republic. Along the route are several cities such as Pando, Santa Lucia, Florida, etc., with populations varying from 800 to 12,000. From Santa Lucia a short branch extends to San Jose, a city of nearly 15,000 inhabitants. This branch crosses the Santa Lucia River over the longest bridge in Uruguay. The Northeastern line, the earnings of which are included in the income statement of the main line, extends from Montevideo to Minas (population 15,000), capital of the State of Minas.

The northern, eastern, and western extensions are worked by the Central Uruguay Railway proper on a percentage basis.

The northern extension earned, in 1912–13, $4,043 per mile. It is a continuation of the main line northward from Santa Izabel to the Brazilian frontier, which is reached at Rivera, 182 miles from Santa Izabel. The country traversed is much

THE ONLY RAILWAY TUNNEL IN URUGUAY.

Not far north of the passage of the Rio Negro, on the direct line of the Uruguay Central Railway between Montevideo and Rivera on the Brazilian frontier, is a relatively short tunnel under the Tambores range of mountains, or hills, as they should more properly be called. The tunnel is more for the purpose of preventing excessive curves than of avoiding extraordinary engineering difficulties.

A MODERN RAILWAY BRIDGE IN URUGUAY.

Of the 1,600 miles of railway in the Republic of Uruguay, almost the entire mileage is standard gauge. Construction has not been difficult from an engineering point of view, although improvements are possible and are constantly being undertaken by the management. Careful attention has been given to the bridges over the numerous streams in the country, with the result that traffic is seldom interrupted on their account.

more thinly settled than the territory served by the main line. Cardosa, a German settlement, and Tacuaremba, a town of 10,000 inhabitants, are important stations. Across the frontier from Rivera is the Brazilian town of Sant Anna do Livramento, whose five large jerked-beef factories furnish a large proportion of the traffic. A link line of three rails connects the terminus of the northern extension with that of a section of the Brazil Railway (1-meter gauge), and is expected to stimulate increased traffic in the shape of timber from the forests of southern Brazil. At present, however, pastoral products form the bulk of the freight traffic.

The Central Uruguay Eastern Extension Railway earned, in 1912–13, $4,047 per mile. The line starts from a point on the northeastern line, 20 miles out of Montevideo, and runs north and east to Melo, with a branch to Treinta y Tres, capital of the State of the same name.

Most of the country served by this extension is well wooded and watered, and large tracts of it are suitable for agriculture, which is a rapidly growing industry, though pastoral products still form the chief source of traffic. Melo, the capital of the State of Cerro Largo, has a population of some 13,000 inhabitants.

From San Jose the western extension traverses largely an agricultural country. There is a branch from Mal Abrigo to Colonia. From Bizcocha it descends through pastoral country into Mercedes, a city of some 17,000 inhabitants, on the Negro River. Mercedes has a large jerked-beef factory. Timber, stone, and charcoal are other traffic items.

The Central during 1912–13 handled 1,657,986 passengers, 1,127,192 tons of freight, and 1,346,396 head of live stock. A daily limited express train is operated between Montevideo and Rivera, on the Brazilian frontier (350 miles).

The terminals and passenger station at Montevideo owned by the Central are well located and are of great value. Large quantities of cattle and other pastoral products and a fair tonnage of cereals for export and for the markets of Montevideo are brought from the interior, which in turn takes the manufactured articles, building material, etc., imported from the United States and Europe. The railway has played an important part in the development of Uruguay.

Dividends of 6½ per cent were paid on the ordinary stock during 1913.

The Midland Uruguay Railway has its terminus at Paso de los Toros (on the Central Uruguay), from which point it runs northward and eastward. The railway passes through Algorta, Paysandu (second city in commercial importance in Uruguay), and other fair-sized towns, and has its northern terminus at Salto. Paysandu and Salto have each over 20,000 inhabitants. From Algorta a branch extends to Fray Bentos (87 miles). This company has outstanding approximately $11,961,000 stock and debentures. * * *

The Northwestern of Uruguay Railway was incorporated in 1882, and extends from Salto, the head of navigation for the Uruguay River, westward and northward to Quarahim on the Brazilian frontier. From Quarahim a bridge has been constructed to connect with the Brazilian Great Southern Railway. This international bridge, recently completed, is owned jointly by the two railways. The Brazilian line, although of a different gauge than the Northwestern of Uruguay, should provide the latter with a considerable amount of through traffic.

The country served by the Northwestern of Uruguay Railway is largely agricultural and pastoral. The railway carries large quantities of sheep, en route to the Montevideo refrigerating plants, and cattle destined for the Liebig plant at Fray Bentos. At Zania Honda the company has successfully established an extensive agricultural colony.

The railway is operated under a Government guaranty. A total of $7,252,590 stock and bonds is outstanding. Dividends of from 2 to 3 per cent have, for some years past, annually been paid on the first preferred stock (6 per cent noncumulative).

The Uruguay East Coast Railway has outstanding approximately $3,128,000 stock and debentures. Receipts, though insufficient to render the line profitable, are on the increase and the outlook for the future is promising. The company receives a guaranty from the Government, which has the right to purchase the line under certain conditions.

This line, 78 miles in length, starts from Olmos, a point on the Central Uruguay (Northeastern) Railway, and has its terminus at Maldonado, a coastal town in the department of the same name. Much of its traffic is due to the fact that Punta del Este and Piriapolis, close to Maldonado, are seaside resorts for the people of Montevideo and Buenos Aires, but the railway also serves a good pastoral and agricultural country. In addition to the products of the farms and ranches a large quantity of fish are handled. The railway has projected an extension from San Carlos, on the main line, northward to Rocha.

The Uruguay Northern Railway extends from Isla de Cabellos, on the Northwestern Railway of Uruguay, to San Eugenio, on the frontier of Brazil. The latter town (population 1,200) is a receiving station for large quantities of cattle, there being a number of meat-products factories in or near the town. The capitalization consists of £100,000 ordinary stock, £250,000 preferred stock (7 per cent cumulative), and £498,402 debenture stock. * * *

The only railway in the Republic of Paraguay is the Paraguay Central Railway, controlled by an English company. This railway extends from Asuncion, the capital of Paraguay, via Paraguari, Villa Rica, and Borja to Villa Encarnacion, on the Parana River (232 miles). A car ferry was placed in service in October, 1913, between the latter point and Posadas, Argentina, the terminus of the Argentine Northeastern Railway. The gauge of the Paraguay Central Railway has been changed to a gauge similar to that of the Argentine Northeastern Railway, and, together with the latter and the Entre Rios Railways, forms an important trunk system instead of a purely local line isolated from all other rail connections. Through the completion of this rail line the time consumed in making the trip from Asuncion to Buenos Aires has been reduced from 5 days to 54 hours. Through passenger service was established October 12, 1913.

The gross receipts of the Paraguay Central Railway for 1912–13 amounted to $732,557. Interest was earned and paid on $3,000,000 6 per cent debenture stock and $2,500,000 6 per cent notes. There is also outstanding $6,500,000 5 per cent income debenture stock and $2,814,650 ordinary stock.

This company is building an extension to the Brazilian frontier, where it will connect with the Brazil Railway's system. This will mean much to the inland Republic, as it will open an easy route for immigration, so necessary for the development of the vast resources of the country, which has an area of 196,000 square miles (larger than New England and the Middle Atlantic States combined) and a population of only 800,000. Surveys have been made for the construction of a transcontinental railway system, to include the new section of the Paraguay Central Railway, which, if plans materialize, will extend from the port of São Francisco, westward through the State of Parana, Brazil, to the Falls of Iguazu, which rival Niagara, where the Republics of Brazil, Argentina, and Paraguay join; thence across Paraguay to Asuncion (via Paraguay Central lines, completed or building), and up through the Chaco country to Bolivia, where it either will connect with a line (presumably the Antofagasta & Bolivia Railway) or else will be extended to Chile and the Pacific coast. The construction of this system, which will likely take a number of years to complete, will open up vast unexplored territory in Paraguay and Bolivia and will do much to develop the country traversed. A large amount of traffic is assured, as vast tracts of forests, agricultural and grazing lands will be opened to settlement and cultivation.

Haiti and the Haitians is the title of an article in a recent number of the Odd Fellows' Journal (Washington, D. C.), being the reproduction of an address delivered by Dr. L. W. Livingston, United States consul at Cape Haitien, before the Bethel Literary and Historical Association. It embodies a description of the island and its natural advantages, reviews the early history of the country, touches on the achievements of Toussaint L'Ouverture, Dessalines, Rigaud, and Christophe, and briefly outlines the political struggles since the time of the last named.

One of the places of great interest to the visitor to Haiti is the citadel of La Ferriere, described by Consul Livingston as follows:

The greatest work of Christophe, the most astonishing, if not the most useful, was the great citadel of La Ferriere, constructed of solid masonry on the summit of a mountain between 4,000 and 5,000 feet high, at the foot of which lies the little town of Milot and the palace already referred to. Some of the walls are 80 feet high and 16 feet thick, and heavy batteries of guns are still in position. Springs of water still exist in the interior, and there were secret subterranean passages and secret chambers for holding his hoarded wealth, much of which is supposed to be still buried there.

A modern writer, who is not viewed in Haiti in a very friendly light on account of his severe criticism of Haitian institutions, had this to say after a visit to the citadel: "We were really lost in amazement as we threaded gallery after gallery, where heavy 56 and 32 pounders guarded every approach to what was intended to be the last asylum of Haitian independence. Years of the labor of toiling thousands were spent to prepare this citadel, which the trembling earth laid in ruins in a few minutes. What energy did this black king possess to rear so great a monument! But the reverse of the medal states that every stone in that wonderful building cost a human life."

Christophe not only feared an invasion of the French, against which this great fortress was intended as a stronghold, but he was also preparing against a possible attack by his rivals of the Republic to the south of him. * * *

Although partially destroyed by the earthquake in 1842, which demolished nearly all of the important buildings in the country, * * * the colossal ruins of the citadel still attest the gigantic work of a hero, and the world still wonders how the work was done and how the material for the construction and armament was ever gotten to the top of the mountain. Great mystery shrouded the work and the fitting up of the building. Little authentic information has ever been obtained, and the whole enterprise is clouded in romance and anecdote. * * * The citadel covers the whole peak of the mountain, dominates all the surrounding country, can be plainly seen from the harbor of Cape Haitien, and has long been a resort for strangers visiting Haiti.

Departing from the historical description of the Republic, the consul then dwell at considerable length upon the wonderful fertility of the soil, the healthy climate, the equable distribution of rainfall, the numerous rivers, the vast plains and valleys, the gorgeous scenery, and the agricultural potentialities which make the island "one of the most desirable places of abode in the world." In discussing this phase of Haiti's advantages he says:

Dyewoods and cabinet woods abound, but most of these have been cut within convenient reach of the seaport towns. The pine tree also flourishes on the interior mountains of the northeast, inaccessible to existing means of transportation. The

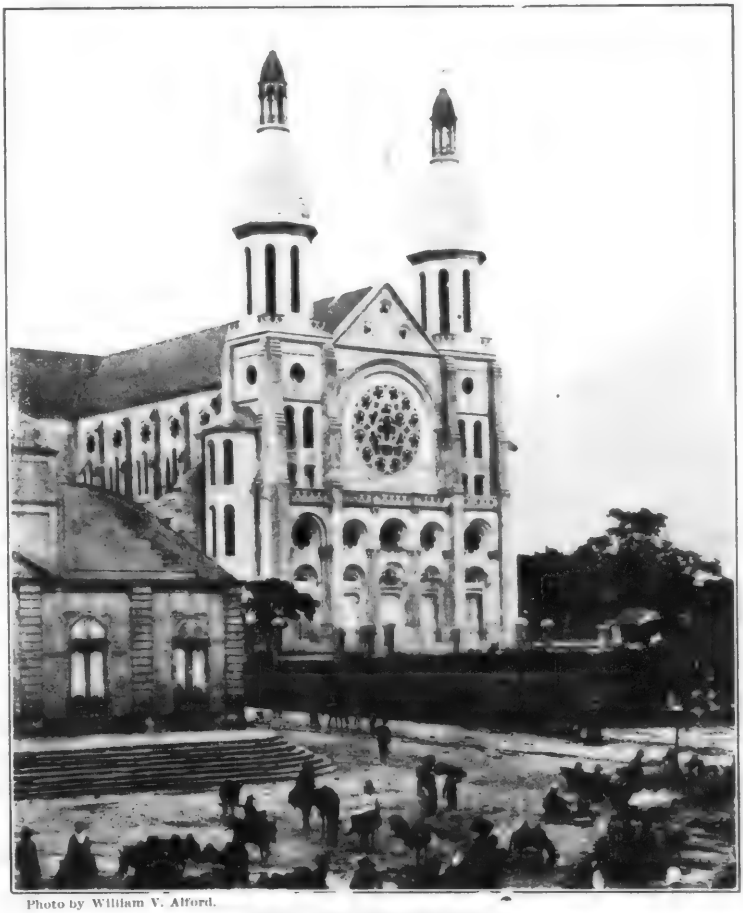


Photo by William V. Alford.

HAITI AND THE HAITIANS.

Upper: View of Port au Prince, capital of Haiti. Lower: The cathedral in Port au Prince.

Courtesy of Collier's Weekly.

THE MARKET HOUSE IN PORT AU PRINCE, CAPITAL OF HAITI

THREE HAITIAN CITIES.

Upper: Port and city of Jérémie Center: Port de Paix. Lower: Cape Haitien.

railroad will eventually open up vast virgin forests, which will add materially to the wealth of the country.

Mineral deposits of unknown value and extent undoubtedly exist and may some day prove a source of great wealth. An inferior quality of coal has recently been found, and copper ore found at some distance from Gonaives has actually been exported from that port. The difficulty of transportation and possibly the lack of capital have stifled it for the present. A copper mine is now being explored at La Grand Reviere, near Cape Haitien.

Haiti is, however, essentially an agricultural country. The marvelous fertility of the soil and the favorable climatic conditions give it easy precedence over all the other islands of the West Indies. Anything with life in it will grow if stuck into the ground. If plants can not actually be seen to grow, it is certain that 24 hours will make a visible difference in their size. Shrubs and small trees shoot up out of the walls of ruined buildings, nourished only by the mortar between the bricks, the air, the dew, and the rain. A riot of vegetation is seen in the uncultivated portions of the country, and neglected fields are speedily covered with a thick growth of tropical verdure.

All tropical fruits flourish here—the orange, the shaddock, the pineapple, the mango, the alligator pear, the plantain, the fig banana. Haiti is one of the best banana countries in the Tropics. * * * This valuable fruit, however, like the others, either grows wild or is cultivated in little patches about the houses for local consumption.

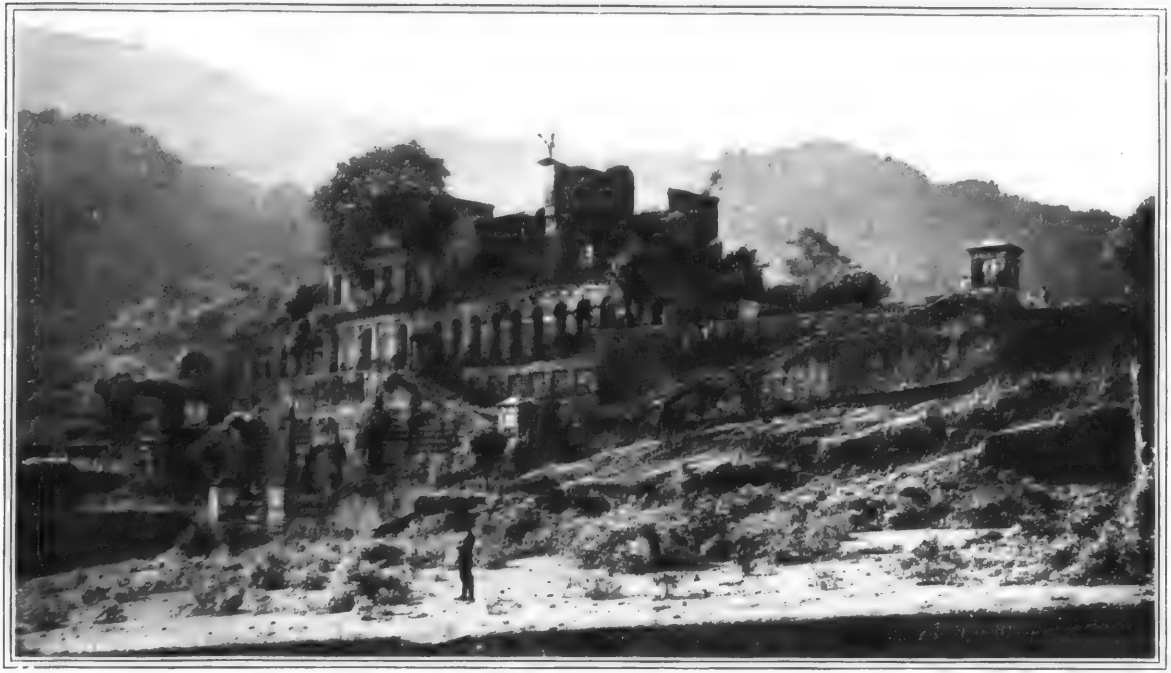
Cotton is cultivated to some extent, and lately there has been quite a revival in the northern part of the island in favor of its more extensive cultivation. It is exported in respectable quantities, about 2,000,000 pounds a year, from St. Marc and Gonaives, and is considered of superior quality. It brings a much higher price than ordinary cotton on the European market.

Haiti may be considered the natural habitat of the sugar cane and ranked under the French colonists with the great sugar-producing countries of the world. This valuable plant flourishes whether it is cultivated or not, and grows on almost indefinitely without being replanted, reproducing itself year after year. Of course, it thrives better when cultivated, and some attention is given to it on a few plantations, where a small quantity of sugar is manufactured for local consumption. Most of the cane grown in Haiti is used for making rum and tafia.

Cacao, although left also largely to nature, is ranked high in quality when properly prepared and is one of the principal articles of export. When it will be properly cultivated and prepared, as it is in the Dominican Republic and other producing countries, it will become a source of great wealth and revenue to the country.

The great staple product of Haiti, however, is coffee. It supplies the bulk of the revenues of the Government, and the meager demands of the simple peasantry of the mountains and valleys whose business it is, especially the women and children, to gather it and bring it to the seaport towns on their heads and on the backs of donkeys and horses. This plant is seen on nearly all the uplands and mountain sides of the country, and as the product is easily portable it is brought to market from far and near in all conceivable quantities, from 1 or 2 pounds up to 40 to 50 or even 100 or 200 pounds, accordingly as it is carried on the head of a child, the back of a horse, or in sacks in ox carts. * * * Notwithstanding that the coffee plant is scarcely cultivated at all, except in small patches around the cottages, it goes on reproducing itself from fallen berries so successfully that the crop only varies from year to year through extraneous influences like a variation in the rainfall—the lack or too abundant rain near or during the flowering season. If properly cultivated and grown on a large scale, and if the inhabitants of the plains were taught to give more attention to its preparation for the local market, where it has to be relieved of any quantity of small stones and other extraneous matter, this article alone, if it were not dangerous to trust

BUILDING AND GROUNDS OF THE "UNION CLUB" IN CAPE HAITIEN, HAITI, A SOCIAL ORGANIZATION OF HIGH STANDING AND GREAT INFLUENCE IN THE COMMUNITY.



RUINS OF THE PALACE OF SANS SOUCI, MILOT, HAITI.

The palace of Sans Souci was built by Christophe, who governed Haiti from 1811 to 1820. It was built on the side of a mountain, with a commanding view across the plain to the sea. Spacious stairways lead to the main entrance of the ruins, long since despoiled of its mahogany floors and rich adornments. Remains of the famous terraced gardens and fruit orchards are still to be seen in the rear of the structure. It was here, in October, 1820, that Christophe terminated his eventful life by his own hand.

RUINS OF THE CITADEL OF LA FERRIERE.

"The greatest work of Christophe, the most astonishing, if not the most useful, was the great citadel of La Ferriere, constructed of solid masonry on the summit of a mountain between 4,000 and 5,000 feet high. * * * Some of the walls are 80 feet high and 16 feet thick, and heavy batteries of guns are still in position." (Consul L. W. Livingstone, in "Haiti and the Haitians," in the *Odd Fellows Journal.*)

the economic welfare of the country to the capricious yield and fluctuating market value of a single industry, would support the Government and enrich the population of the country. The disastrous effect of being dependent even in part upon a single industry is seen at present in Haiti. Practically all of the Haitian coffee has always been shipped to Europe, principally to France and Germany, the city of Havre, in France, being the great distributing center. * * * An effort is now being made to make a market for this coffee in the United States, but the people here are not accustomed to it and are at present taking very little of it.

Mr. Livingston emphasized the need of foreign investments and capital to develop the country and expressed his confidence that these elements would be forthcoming in adequate proportions when complete stability and regularity of political affairs have been established.

Relative to the cultural and literary achievements of the Haitians, the consul made the following reference:

* * * The fact that it has a literature, groups of refined and educated people in all the important towns, distinguished doctors and lawyers who would rank high in any country, is not at all generally known. The official language of the country is French, and all educated persons, of course, speak this language. The books of Haitian authors are written in this language. The native literature is now becoming considerable, embraces almost all departments, and some of it is of a high order. I can only mention a few of the most prominent names here. The early writers wrote history and ephemeral poetry. The principal historians are Madiou and Ardouin, who both wrote well-known histories of Haiti. Mr. J. N. Leger, ex-minister to the United States, has also written an interesting history of Haiti. Within the last few years Mr. Magloire has published a history of Haitian revolutions. Among the writers of romance, Demesver Delorme, who has been called the father of Haitian literature, takes first place. He wrote "Francisca," "Les Theoriciens au Pouvoir," and "La Hollande." He was decorated by the Emperor of Germany, the Pope, and the Sultan of Turkey. Frederic Marcelin, Ferdinand Hibbert, Antoine Innocent, and others have written very interesting stories portraying Haitian life, manners, and customs.

Many interesting writers, like Antenorx Firmin, Hannibal Price, Jeremie, and Fequiere have dealt with political, social, and educational questions.

It is in the lines of poetry, however, that their greatest effort has been put forth, or at least, it is poetry that has attracted the greatest number of writers. Oswald Durand stands incontestably at the head of this class. His two volumes entitled "Rires et Pleaurs" gave him high rank as a poet and won for him the right to be called the national poet of Haiti. The work of Mr. Etzer Vilaire was crowned by the Academy of France. Mr. George Sylvain has also written good poetry and has rendered the "Fables of La Fontaine" into the creole language of the country. Other names might be mentioned but the list is long and a bare mention of names would serve no purpose.

Mr. Livingston concluded his address with an appeal to his audience to develop a closer interest and intimacy between the Negro of the United States and of Haiti for the purpose of cooperating in attaining the highest social, economic, and political results.

COMMERCE OF BRAZIL

THE total foreign trade of Brazil for the year 1913, not including imports and exports of foreign specie and bank notes, according to the report of the minister of finance, was 1,980,225,916 milreis paper, represented by imports to the value of 1,007,495,400 milreis and exports of 972,730,516 milreis.

The trade for the year 1912, according to the same report, was 2,071,106,738 milreis, of which sum 951,369,558 milreis represented imports, and 1,119,737,180 milreis exports. There was, therefore, for the year 1913 an increase in imports of 56,125,842 milreis and a decrease in exports of 147,006,664 milreis, or a net loss in the year's foreign trade of 90,880,822 milreis.

In terms of United States gold the Brazilian paper milreis may be considered as worth 32.4 cents. At this rate the foreign commerce for the two years was as follows:

Year.	Imports.	Exports.	Total.
1912	$308,213,736	$362,794,846	$671,038,582
1913	326,428,509	315,164,687	641,593,196

The imports and exports of foreign specie and bank notes were represented as follows:

Year.	Imports.	Exports.
	Milreis paper.	*Milreis paper.*
1912	75,051,703	21,627,873
1913	18,726,915	87,986,980

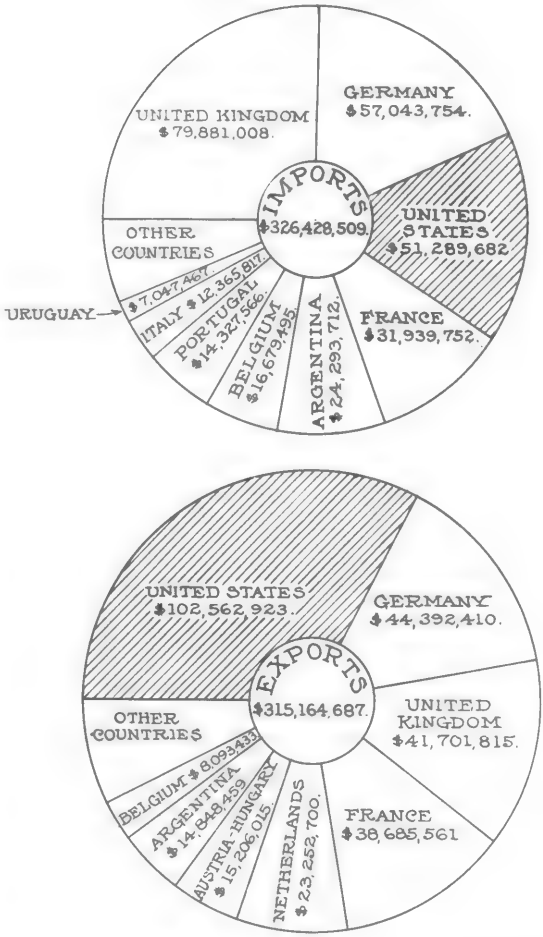
Table showing the commerce of Brazil for the last 12 years.

Years.	Imports.	Exports.	Total.
	Milreis paper.	*Milreis paper.*	*Milreis paper.*
1902	471,114,120	735,940,125	1,207,054,245
1903	486,488,944	742,632,278	1,229,121,222
1904	512,587,889	776,367,418	1,288,955,307
1905	454,994,574	685,456,606	1,140,451,180
1906	499,286,976	799,670,295	1,298,957,271
1907	644,937,744	860,890,882	1,505,828,623
1908	567,271,636	705,790,611	1,273,062,247
1909	592,875,927	1,016,590,270	1,609,466,197
1910	713,863,143	939,413,449	1,653,276,597
1911	793,716,446	1,003,924,736	1,797,641,182
1912	951,369,558	1,119,737,180	2,071,106,738
1913	1,007,495,400	972,730,516	1,980,225,916

BRAZIL

COMMERCE 1913

$641,593,196.



PAN AMERICAN UNION

IMPORTS.

The imports for the years 1909, 1910, 1911, 1912, and 1913, by countries, reduced to United States gold, were as follows:

Countries.	1909	1910	1911	1912	1913
United Kingdom	$48,241,287	$65,841,773	$74,695,592	$77,615,548	$79,881,008
Germany	28,007,001	36,774,520	43,180,830	53,018,079	57,043,754
United States	22,265,534	29,703,847	34,300,327	48,109,316	51,289,682
France	18,610,398	21,863,429	22,744,839	27,751,094	31,939,752
Argentina	17,922,587	19,767,410	19,594,486	23,117,198	24,293,712
Belgium	7,280,007	10,461,354	10,725,701	16,592,520	16,679,495
Portugal	9,994,615	12,865,607	13,832,400	14,589,170	14,327,566
Italy	5,236,557	7,366,984	9,382,106	12,095,559	12,365,817
Uruguay	6,294,057	5,991,258	5,715,011	7,718,306	7,047,467
Austria-Hungary	2,365,825	3,285,960	3,777,460	4,394,871	4,927,772
Switzerland	1,963,169	2,858,729	3,455,559	3,860,369	3,844,350
Newfoundland	2,008,641	2,658,104	2,808,829	2,854,021	3,824,730
Netherlands	1,748,977	1,463,250	1,650,752	2,305,276	3,537,179
Norway	1,504,933	1,940,906	2,182,390	3,137,794	3,431,885
Spain	1,522,001	2,160,271	2,376,244	3,247,609	3,116,484
India	1,490,308	1,935,437	2,406,394	1,997,505	2,679,725
Sweden [1]	.....	1,031,298	1,037,509	1,367,442	1,429,689
Canada	953,523	1,138,594	1,015,167	1,133,225	1,331,410
Other countries	2,280,705	2,182,927	2,282,531	3,338,834	3,437,032
Total	179,690,125	231,291,658	257,164,128	308,243,736	326,428,509

[1] In 1909 included under "Other countries."

The imports are divided into four general classes. Under these classes for the years 1910, 1911, 1912, and 1913 they were:

	1910	1911	1912	1913
	Milreis paper.	*Milreis paper.*	*Milreis paper.*	*Milreis paper.*
Class I.—Live animals	4,692,622	3,444,759	5,680,834	5,350,712
Class II.—Primary materials and materials used in the arts and industries	132,186,996	153,126,229	190,280,914	210,943,556
Class III.—Manufactures	392,474,930	444,887,312	533,017,338	565,279,295
Class IV.—Alimentary substances	184,508,595	192,258,146	222,390,472	225,921,837
Total	713,863,143	793,716,446	951,369,558	1,007,495,400
United States gold	$231,291,658	$257,164,128	$308,243,736	$326,428,509

The principal imports in 1913 under Class I, "Live animals," were 2,449 horses, worth 1,369,705 milreis; 46,091 sheep, worth 832,623 milreis; 35,136 head of beef cattle, worth 2,507,899 milreis.

Class II, "Primary materials and materials used in the arts and industries," is divided into the following subclasses, of which the imports were:

	1910	1911	1912	1913
	Milreis paper.	*Milreis paper.*	*Milreis paper.*	*Milreis paper.*
Cotton	10,578,616	10,164,997	10,660,470	9,900,531
Hair, fur, and feathers	1,472,395	1,528,509	1,701,802	1,764,185
Cane, bamboo, rush, and the like	227,808	247,986	283,556	275,054
Lead, tin, zinc, and alloys	2,346,016	2,300,545	3,381,420	3,671,719
Copper and alloys	2,631,264	2,573,348	3,259,083	3,457,179
Animal residuary products	968,696	1,233,137	1,199,545	1,170,721
Iron and steel	6,826,992	7,228,282	9,625,175	11,858,322
Jute and hemp	7,346,766	12,406,049	10,061,800	11,413,088
Wool	4,139,074	3,980,167	7,392,472	8,715,497
Flax	824,778	950,021	963,626	681,895
Woods	8,564,210	8,077,532	11,743,725	14,197,039
Material for perfumery, painting, dyeing, etc	8,034,468	9,519,645	10,494,008	9,800,150
Metals and metalloids not otherwise enumerated	461,263	524,815	687,229	563,978
Gold, silver, and platinum	852,776	3,325,954	2,959,820	752,482
Straw, esparto, pita, and like fibers	710,814	1,003,356	1,071,985	1,184,896
Seeds, roots, barks etc	4,929,803	5,922,175	8,309,935	9,999,949
Coal, stones, earths, and other like substances	55,272,720	63,826,094	88,333,574	98,070,912
Pelts and skins	9,937,845	11,648,504	11,151,888	14,774,050
Silk	886,621	1,317,785	1,504,288	1,775,756
Vegetable extracts and oils	5,171,081	7,116,087	7,495,513	6,916,153
Total	132,186,996	154,914,988	190,280,914	210,943,556

In 1913 over 60 per cent in value of the cotton imported, 1,350,304 kilos. was sewing thread, and the balance, 2,150,688 kilos. was raw and carded cotton.

Under "Hair, fur, and feathers," the bulk of the imports, 135,515 kilos, was rabbit, beaver, and like fur.

Lead, tin, and zinc, 6,925 metric tons, were imported in the form of bars, plates, and sheets. Copper, 2,598 metric tons, was imported in the same form.

The principal animal residuary products were glue, 450 tons, worth 485,691 milreis; spermaceti and stearin, 112 tons, worth 100,247 milreis; grease and tallow, 501 tons, worth 266,752 milreis.

Of iron and steel the principal imports were: Steel in bars and rods, 7,200 tons, worth 2,260,542 milreis; steel in plates, 2,996 tons, worth 589,149 milreis; iron in bars and rods, 40,557 tons, worth 5,707,404 milreis; iron in ingots, 19,628 tons, worth 1,657,681 milreis; iron in plates, 9,438 tons, worth 1,643,549 milreis.

Of the total importation of jute and hemp, 19,964 tons, over one-half in value was in the form of yarn for weaving, and over one-third in the raw state.

Of the total importation of wool, 2,455 tons, the largest amount, 1,712 tons, worth 7,641,292 milreis, was yarn for weaving; 33 tons, worth 155,121 milreis, was knitting and embroidery thread, and the remainder, 709 tons, was raw and carded wool.

Nearly all the flax was in the form of thread.

Under the heading "Woods" the principal imports were pine lumber, 147,739 tons, worth 10,780,523 milreis; wood pulp for paper manufacture, 6,023 tons, worth 789,725 milreis; and wood, rough, sawed, planed, and veneered, 5,055 tons, worth 1,268,217 milreis. Over 90 per cent of the pine lumber was imported from the United States.

The principal imports under the heading "Material for perfumery, painting, dyeing, etc.," were linseed oil, 4,848 tons, worth 2,557,289 milreis; aniline dyes, 431 tons, worth 1,764,169; white zinc, 3,328 tons, worth 1,449,911 milreis; paints in powder, 2,465 tons, worth 1,077,392 milreis; turpentine, 984 tons, worth 554,474 milreis; artificial extracts, fixed oils, volatile essences, 26 tons, worth 455,338 milreis.

The principal imports of "Metal and metalloids not otherwise enumerated" were sulphur, 2,002 tons, worth 269,091 milreis; aluminum, antimony, arsenic, bismuth, potassium, sodium, mercury, and nickel.

Under "Gold, silver, and platinum" over 90 per cent in value of the entire importation was in the form of bar silver, and 6 per cent in gold leaf for gilding and dentistry.

Under "Straw, esparto, pita, and like fibers" the principal imports were broom straw, 805 tons, worth 383,564 milreis; straw for mat and hat making, 42 tons, worth 320,532 milreis.

Under "Seeds, roots, barks, etc.," which heading does not include the ordinary cereals, the principal imports were: Malted barley, 21,036 tons, worth 6,894,954 milreis; hops, 1,449 tons, worth 1,062,510 milreis; leaf tobacco, 359 tons, worth 1,193,043 milreis.

Under "Coal, stones, earths, and other like substances" the principal imports were: Coal, 2,262,347 tons, worth 60,278,326 milreis, of which 84 per cent came from the United Kingdom and a little over 1 per cent from the United States; cement, 465,314 tons, worth 22,003,211, the bulk of which came from Germany and the United Kingdom, with lesser amounts from Belgium and the United States; coal briquets, 239,049 tons, worth 8,244,958 milreis; nitrate of soda, 2,467 tons, worth 836,969 milreis; asphalt, 21,372 tons, worth 930,811 milreis; coke, 17,165 tons, worth 667,450 milreis; marble, 11,668 tons, worth 1,400,338 milreis; unmounted precious stones, valued at 776,466 milreis.

Under the heading "Pelts and skins" (1,481 tons) nearly the whole importation, 1,444 tons valued at 14,628,855 milreis was tanned and prepared skins and hides, of which 42 per cent was from Germany, 20 per cent from France and the United States

each, and 7 per cent from the United Kingdom. There was also imported under this heading 37 tons of sole leather, worth 145,195 milreis, of which 81 per cent was from the United Kingdom and 16 per cent from the United States.

Under "Silk" practically the entire importation was in the form of thread.

Under "Vegetable extracts and oils" the principal imports were rosin, 18,929 tons, worth 4,403,624 milreis; cottonseed oil, 1,497 tons, worth 918,860 milreis; palm oil, 824 tons, worth 622,525 milreis; vegetable oils for industrial use, 202 tons, worth 103,116 milreis; gums, rosins, and natural balsams, 374 tons, worth 421,362 milreis.

Class III, "Manufactures," is divided into the following subclasses, of which the imports were:

	1910	1911	1912	1913
Manufactures:	*Milreis paper.*	*Milreis paper.*	*Milreis paper.*	*Milreis paper.*
Of cotton, mixed or not	66,212,326	76,707,949	64,961,217	58,715,320
Of aluminum	233,316	193,182	251,720	241,279
Guns and ammunition	15,611,464	7,040,731	14,625,710	20,683,614
Of rubber [1]			2,973,632	5,476,582
Of bristles and hair	786,476	930,105	1,004,195	964,040
Of cane, bamboo, etc	98,253	162,911	170,658	148,018
Carriages and other vehicles	12,156,199	18,080,984	14,194,187	16,340,347
Of lead, tin, zinc, and alloys	1,204,039	1,551,532	1,882,533	1,956,477
Of copper and alloys	6,974,176	8,220,933	10,321,380	11,926,351
Of iron and steel	73,555,557	81,424,363	101,745,225	120,683,880
Musical and like instruments	3,786,831	5,563,165	5,369,804	4,360,649
Surgical and dental instruments and material	1,541,141	1,584,921	1,740,955	2,045,090
Mathematical, physical, and optical instruments and material	1,671,771	2,007,322	2,075,161	1,813,812
Of wool, mixed or not	10,488,127	12,431,905	12,405,779	11,020,530
Of linen, mixed or not	6,987,892	7,984,700	6,783,162	6,428,483
Of jute and hemp	805,243	970,789	1,353,285	1,244,970
Earthenware, porcelain, and glass	10,989,594	14,099,235	14,539,784	16,257,894
Engines, machinery, tools, and hardware	66,107,885	86,898,467	108,878,071	107,455,357
Of wood	3,672,593	4,784,381	5,621,008	6,076,494
Of ivory, mother-of-pearl, coral, tortoise shell, etc	400,195	417,252	432,724	158,147
Of nickel	27,602	38,640	30,571	5,820
Of gold, silver, and platinum	1,634,388	1,512,459	1,288,800	1,016,871
Of straw, esparto, pita, etc	1,543,565	1,474,357	1,790,619	1,687,305
Of paper	15,491,017	17,525,868	18,890,382	22,630,789
Of earths, stones, and like substances	3,853,938	4,410,637	6,904,714	9,621,373
Of leather	3,340,061	4,067,387	4,734,031	5,632,358
Perfumery, paints, inks, etc	8,130,998	8,290,959	8,744,069	8,946,021
Chemicals, drugs, and pharmaceutical specialties	16,437,081	18,485,084	21,605,302	21,094,548
Of silk, mixed or not	3,514,042	3,906,543	3,256,622	2,483,300
Miscellaneous	55,219,132	54,210,551	64,442,038	68,117,576
Total	392,474,930	444,887,312	533,017,338	565,279,295

[1] In 1910 and 1911 included under "Miscellaneous."

Under "Manufactures of cotton" the principal imports in 1913 were: Piece goods, bleached, 1,233 tons, worth 4,247,263 milreis; unbleached, 239 tons, worth 587,797 milreis; prints, 353 tons, worth 1,419,307 milreis; dyed, 1,808 tons, worth 7,760,239 milreis; other piece goods, 6,213 tons, worth 24,531,468 milreis. Practically all the bleached, unbleached, dyed, and printed goods were from the United Kingdom. Of "Other piece goods" over one-half was from the United Kingdom, with small amounts from Germany and the United States. Other imports under this heading were ready-made clothing, valued at 3,468,645 milreis; passementerie, lace, ribbons, etc., valued at 2,854,947 milreis; stockings, valued at 1,112,070 milreis; and bedspreads, valued at 1,447,563 milreis.

Of the 3,906 tons of arms and ammunition, 1,570 tons, worth 13,263,582 milreis, were shotguns, revolvers, and other firearms; 1,728 tons, worth 4,749,178 milreis, were small-arm ammunition; 504 tons, worth 2,192,640 milreis, were artillery ammunition, with a small amount of swords and other side arms. Of shotguns, revolvers, and other

firearms, over one-half was from Germany, the balance from Belgium, the United States, and the United Kingdom. Of small-arm ammunition, more than one-half was from Germany and one-third from the United States.

Under "Manufactures of rubber" the principal imports were pneumatic tubes and casings for automobiles, worth 2,325,795 milreis; solid tires for automobiles, worth 397,106 milreis; boots and shoes, worth 193,240 milreis; and tubes, worth 331,967 milreis.

Of "Manufactures of bristles and hair" the principal imports were brooms and brushes, valued at 795,111 milreis.

Under "Carriages and other vehicles" the principal imports were 3,218 automobiles, valued at 14,474,874 milreis, of which 33 per cent in value was from France, 21 per cent from Germany, and 17 per cent from the United States. Automobile accessories, 500 tons, worth 1,652,812 milreis, about 19 per cent from the United States; railway cars, 69,022 tons, worth 28,358,084 milreis, of which over 44 per cent was from Belgium, 29 per cent from the United States, and 22 per cent from the United Kingdom; bicycles, worth 538,391 milreis; motorcycles, worth 274,938 milreis; carts and other vehicles not specified, valued at 1,041,248 milreis, of which over 60 per cent was from the United States.

Of "Manufactures of lead, tin, zinc, and alloys," 2,931 tons, the principal imports were printing type, 250 tons, worth 726,462 milreis, the great bulk of which was from Germany; tinware not specified, 136 tons, worth 383,429 milreis, the bulk of which was also from Germany; zinc roofing, 2,294 tons, worth 597,387 milreis.

Of "Manufactures of copper," 6,320 tons, worth 11,926,351 milreis, the principal imports were copper wire, 417 tons, worth 514,184 milreis; tubes and piping, 248 tons, worth 438,725 milreis; electric wire, plain, 722 tons, worth 915,663 milreis; electric wire, insulated, 1,047 tons, worth 1,340,754 milreis; electric cable, 2,578 tons, worth 2,542,863 milreis; manufactures not specified, 1,256 tons, worth 5,577,133 milreis.

Under "Manufactures of iron and steel" the principal imports were fence wire, 30,721 tons, worth 5,719,350 milreis; other wire, 26,589 tons, worth 4,771,255 milreis, of which nearly three-fourths was from Germany, and less than one-tenth from the United States; galvanized roofing material, 22,393 tons, worth 5,724,285 milreis, the bulk from the United Kingdom, and about 6 per cent from the United States; tin plate, 21,372 tons, worth 6,347,288 milreis, the bulk from the United Kingdom and about 11 per cent from the United States; iron superstructure for buildings, 71,363 tons, worth 14,066,851 milreis, the bulk of which was from Germany, with about 14 per cent from the United Kingdom and 13 per cent from the United States; telegraph and telephone posts, bridge material and fencing, 23,878 tons, worth 5,762,143 milreis, of which 31 per cent was from Belgium, 23 per cent from Germany and the United Kingdom each, and 13 per cent from the United States; steel rails, plates, etc., 261,547 tons, worth 34,705,944 milreis, of which 32 per cent was from France, 24 per cent from Belgium, 18 per cent from Germany, and 17 per cent from the United States; tubes, pipes, and fittings 73,461 tons, worth 13,882,093 milreis, of which 35 per cent was from the United Kingdom, 33 per cent from Germany, 14 per cent from France, and 8 per cent from the United States; railway axles and wheels, 10,984 tons, worth 3,705,187 milreis, of which about 11 per cent was from the United States; cutlery, 906 tons, worth 3,757,526 milreis, of which about 47 per cent was from Germany, 27 per cent from the United Kingdom, and 13 per cent from the United States; locks, fishhooks, and other small hardware, 1,714 tons, worth 1,792,833 milreis, of which nearly one-half was from Germany and about one-fifth from the United States; nails, staples, hooks, and screws, 3,637 tons, worth 1,248,163 milreis, of which over 24 per cent was from the United States; enameled ware, 1,426 tons, worth 1,553,474 milreis, nearly all from Germany.

Of "Musical and like instruments" the principal imports were 2,633 pianos, worth 1,962,049 milreis, of which over three-fifths came from Germany and about one-seventh from the United States; phonographs, 171,791 kilos, worth 461,727 milreis, of which over three-fourths was from Germany and nearly all the remainder from the United States; phonograph records, 57,695 kilos, worth 275,047 milreis; phonograph accessories, 45,812 kilos, worth 173,126 milreis; 140 piano players, worth 189,968 milreis.

Surgical instruments and articles were imported to the amount of 97,131 kilos, worth 376,377 milreis, of which 51 per cent was from France, 29 per cent from Germany, and 8 per cent from the United States. Dental instruments and articles, 106,170 kilos, worth 792,898 milreis, the great bulk of which was from the United States. Optical instruments and articles were imported to the value of 319,669 milreis, of which about one-third was from France and one-fourth from the United States. Other scientific instruments not specified amounted to 1,494,143 milreis, of which over 36 per cent was from Germany, 24 per cent from the United States, and 17 per cent from France.

Under "Manufactures of wool," mixed or not, the principal imports were: Wool piece goods, 1,249 tons, worth 8,425,697 milreis; ready-made clothing, worth 245,047 milreis; trimmings, worth 36,021 milreis; tapestry and carpets, 197 tons, worth 610,788 milreis, and felts and sarcenet, 205 tons, worth 520,753 milreis.

Under "Manufactures of linen, mixed or not," the principal imports were: Cloth, 1,383 tons, worth 5,370,670 milreis; ready-made clothing, worth 266,035 milreis.

Under "Earthenware, porcelain, and glass," the principal imports were: Window glass, 7,451 tons, worth 2,035,394 milreis, about 56 per cent of which was from Belgium and 24 per cent from the United Kingdom; bottles and tumblers, 640 tons, valued at 1,869,772 milreis, the bulk of which came from Germany and about 6 per cent from the United States; flasks and pots, 852 tons, worth 639,430 milreis, the bulk of which came from Germany; manufactures of porcelain and earthenware not specified, 9,215 tons, worth 7,180,433 milreis; manufactures of glass not specified, 2,058 tons, worth 3,111,414 milreis.

Under the heading "Engines, machinery, tools, and hardware" the principal imports were: Electrical machinery and apparatus, 7,065 tons, worth 10,344,020 milreis, of which 44 per cent was from the United States, 23 per cent from Germany, and 20 per cent from the United Kingdom; locomotives, 13,704 tons, worth 10,583,534 milreis; sewing machines, 6,222 kilos, worth 8,387,197 milreis, of which 68 per cent was from the United States and 25 per cent from Germany; industrial machinery, 17,605 tons, worth 11,201,434 milreis, of which 34 per cent was from Germany, 25 per cent from the United Kingdom and France each, and 7 per cent from the United States; agricultural machinery, 2,400 tons, worth 1,446,072 milreis, of which 49 per cent was from the United States and 25 per cent from Germany; typewriters, 133 tons, worth 1,116,998 milreis, of which 79 per cent was from the United States and 17 per cent from Germany; hydraulic pumps, 1,332 kilos, worth 1,391,182 milreis, of which over 28 per cent was from the United Kingdom and the United States each; boilers, 3,189 tons, worth 2,003,206 milreis; tools and implements, 11,629 tons, worth 12,257,363 milreis; electric motors, 1,489 tons, worth 1,846,231 milreis, of which 35 per cent was from the United States and 28 per cent from Germany; machine for spinning and weaving, 10,205 tons, worth 4,675,214 milreis; aeroplanes, worth 206,281 milreis; cranes, 2,991 tons, worth 1,954,594 milreis; machinery, apparatus, implements, etc., not specified, 28,288 tons, worth 26,539,225 milreis, of which 29 per cent was from Germany and 24 per cent from the United States and the United Kingdom each.

Under "Manufactures of wood" the principal imports were: Furniture, 1,727 tons, worth 2,605,783 milreis, of which 45 per cent was from Austria-Hungary, 16 per cent from France, 11 per cent from Germany, 10 per cent from the United States, and 5 per cent from the United Kingdom; corks, 478 tons, worth 1,316,551 milreis; manufactures not specified, 1,252 tons, worth 1,538,080 milreis.

Under "Manufactures of gold, silver, and platinum" are included jewelry, with or without precious stones, as follows: Gold, valued at 570,727 milreis; silver at 429,408 milreis; and platinum at 16,736 milreis.

Under "Manufactures of paper" the principal imports were books, maps, and music, 1,667 tons, worth 3,960,100 milreis; other printed matter, lithographs, postal cards, bills, etc., 809 tons, worth 1,847,853 milreis; cigarette paper, 435 tons, worth 1,214,937 milreis; writing paper, 1,829 tons, worth 1,461,860 milreis, of which 55 per cent was from Germany, 14 per cent from Italy, 11 per cent from Austria-Hungary, and 2 per cent from the United States; printing paper, 30,052 tons, worth 7,373,137 milreis, of which 36 per cent was from Germany, 18 per cent from Norway, 13 per cent from Sweden, 10 per cent from the Netherlands, with the bulk of the remainder from Belgium and the United Kingdom, and less than 1 per cent from the United States; cardboard and pasteboard, 5,748 tons, worth 1,627,157 milreis, of which 56 per cent was from Germany, 19 per cent from the Netherlands, and less than 1 per cent from the United States; paper not otherwise specified, 10,066 tons, worth 4,265,010 milreis.

Under "Manufactures of earths, stones, and like substances" the principal imports were: Mosaics and bricks for pavements, 12,963 tons, worth 2,381,246 milreis; tiles, 57,199 tons, worth 2,764,925 milreis; tiles of asbestos, 3,384 tons, worth 455,311 milreis; bricks, refractory, and for building, 13,389 tons, worth 813,044 milreis; pipes and tubes, 14,577 tons, worth 1,745,278 milreis.

Under "Manufactures of leather" the principal imports were: Boots and shoes to the value of 2,424,640 milreis, of which about three-fourths came from the United States and one-seventh from Austria-Hungary; belting, 245 tons, worth 1,150,433 milreis.

Under "Perfumery, paints, inks, etc.," the principal imports were: Perfumery amounting to 5,010,842 milreis; printing ink, 328 tons, worth 385,358 milreis, of which 56 per cent was from Germany, 26 per cent from France, and 11 per cent from the United States; writing ink to the value of 121,484 milreis, the great bulk from the United Kingdom, with about 8 per cent from the United States; prepared paints, 2,522 tons, worth 2,062,936 milreis, of which 48 per cent was from the United Kingdom, 17 per cent from the United States, and 16 per cent from Germany.

Under "Chemicals, drugs, and pharmaceutical specialties" the principal imports were: Natural and artificial mineral waters, 276 tons, worth 251,794 milreis; calcium carbide, 5,637 tons, worth 1,314,811 milreis, of which 52 per cent was from Norway and 8 per cent from the United States; caustic soda, 7,581 tons, worth 1,579,374 milreis. Acids: Acetic, 165,900 milreis; sulphuric, 177,678 milreis; nitric, 9,234 milreis; tannic, 36,592 milreis; acids not specified, 423,920 milreis. Pills and capsules, 156,986 milreis, of which 52 per cent was from the United States and 27 per cent from France. Chemical manures, 9,471 tons, worth 1,334,121 milreis. Chemical products, drugs, etc., not specified, 15,933 tons, worth 15,112 milreis, of which 34 per cent was from France, 27 per cent from Germany, 19 per cent from the United Kingdom, and 8 per cent from the United States.

Under "Manufactures of silk" the principal imports were ribbons, to the value of 619,181 milreis; piece goods, 811,990 milreis; manufactures not otherwise enumerated, 736,047 milreis.

Under "Miscellaneous" the principal imports were: Stationery and school supplies, value, 1,259,698 milreis; buttons, 1,965,442 milreis; pipes and smokers' articles, 779,516 milreis; toys, 1,763,146 milreis. Hats, felt, 114,585 milreis; straw, 1,430,873 milreis; not specified, 931,948 milreis. Umbrellas and parasols, valued at 1,359,333 milreis. Watches, worth 766,499 milreis, of which 87 per cent came from Switzerland, 4 per cent from the United States, and 3 per cent from Germany. Gasoline, 28,972 tons, worth 7,724,444 milreis, practically all from the United States. Kerosene, 106,669 tons, worth 14,546,651 milreis, nearly all from the United States. Lubri-

cating oils, mineral and vegetable, 17,105 tons, worth 4,905,384 milreis, of which 66 per cent came from the United States, 10 per cent from the United Kingdom, 8 per cent from Germany, and 4 per cent from Russia. Dynamite, valued at 1,180,527 milreis, of which 82 per cent was from the United Kingdom, 9 per cent from Germany, 4 per cent from France, and 3 per cent from the United States. Steam and sail vessels, valued at 7,719,724 milreis; small ships and boats, worth 3,353,296 milreis; lighting appliances not specified, worth 1,526,728 milreis.

Class IV, "Alimentary substances," is divided into two subclasses, of which the imports were:

	1910	1911	1912	1913
	Milreis paper.	*Milreis paper.*	*Milreis paper.*	*Milreis paper.*
Food products	182,503,089	189,605,656	220,199,181	223,676,794
Cattle food	2,005,506	2,652,590	2,191,291	2,245,043
Total	184,508,595	192,258,246	222,390,472	225,921,837

Under "Food products" the principal imports were: Wheat, 438,426 tons, worth 49,364,515 milreis, the bulk of which came from Argentina, with about 1 per cent from Canada and the United States each.

Wheat flour, 170,160 tons, worth 32,022,318 milreis, of which 55 per cent was from Argentina, 38 per cent from the United States, and 3 per cent from Uruguay. The following table shows the imports of wheat flour from the principal countries through the different ports of Brazil during 1912 and 1913:

1912.

	Argentina.		United States.		Uruguay.		Austria-Hungary.	
	Tons.	Milreis paper.	Tons.	Milreis paper.	Tons.	Milreis paper.	Tons.	Milreis paper.
Itacoatiara			335	77,217				
Manaos			4,843	1,211,246	11	1,943		
Para	1,247	211,879	10,662	2,563,358	9	1,608		
Maranhao			2,294	555,882			21	6,887
Parnahyba			205	54,044				
Fortaleza	436	72,289	3,607	891,547				
Natal	1,594	271,551	345	71,818			21	7,271
Cabedello	2,031	358,887	991	215,360			43	12,826
Recife	11,110	1,899,194	11,584	2,466,909	1,615	298,678	538	146,437
Maceio	1,838	312,480	3,606	822,982	53	8,954	329	90,713
Aracaju							46	13,411
Bahia	15,289	2,637,438	720	168,803	99	18,061	394	107,294
Victoria			3,183	664,047				
Rio de Janeiro	406	72,337	7,727	1,604,956	39	7,376	79	22,769
Santos	27,354	4,974,478	4,501	963,923	10,833	1,676,274	21	6,000
Paranagua, Antonia and Foz do Iguassu	14,244	2,491,909	57	12,011	460	79,716		
S. Francisco, Itajahy, Joinville Florianopolis	4,565	816,288			2,680	492,601		
Rio Grande Pelotas, Porto Alegre and other points of entry of Rio Grande do Sul	27,931	4,918,869	180	38,603	7,123	1,277,947		
Corumba, Cuyaba and Porto Murtinho	1,495	345,938			64	12,116		
Total	109,540	19,383,537	54,840	12,382,716	22,986	3,875,274	1,492	413,608

1913.

	Argentina.		United States.		Uruguay.		Austria-Hungary.	
	Tons.	Milreis paper.	Tons.	Milreis paper.	Tons.	Milreis paper.	Tons.	Milreis paper.
Manaos	107	17,555	4,578	1,080,116			9	2,361
Para	1,284	209,145	9,012	2,067,852				
Maranhao			2,483	500,350			31	9,567
Parnahyba			191	46,374				
Fortaleza	485	80,150	4,323	980,625				
Natal	2,200	375,467	400	83,488			4	1,564
Cabedello	3,334	563,014	2,085	404,296			46	13,306
Recife	16,013	2,712,519	14,961	3,134,481	660	119,982	392	106,615
Maceio	1,578	266,863	5,604	1,128,841			363	99,573
Aracaju							17	4,845
Bahia	15,471	2,633,640	1,734	359,802			140	50,272
Victoria	101	17,475	2,806	577,349				
Rio de Janeiro	1,093	137,397	4,057	826,104			42	12,219
Santos	14,672	2,699,883	3,236	644,284	2,073	333,078	10	3,000
Paranagua, Antonia and Foz do Iguassu	12,800	2,292,371	888	174,369	48	9,244		
S. Francisco, Itajahy Joinville and Florianopolis	4,097	696,995			148	28,688		
Rio Grande, Pelotas, Porto Alegre and other points of entry of Rio Grande do Sul	30,617	5,221,384	492	105,364	3,153	547,548		
Corumba, Cuyaba and Porto Murtinho	100	21,327	80	18,117	37	8,912		
Total	103,961	17,945,185	56,929	12,191,812	6,119	1,047,452	1,104	303,318

Codfish, 49,573 tons, worth 25,210,598 milreis, of which 46 per cent was from Newfoundland, 28 per cent from Norway, 13 per cent from Canada, 5 per cent from the United Kingdom, and 4 per cent from the United States; preserved fish, 3,892 tons, worth 4,249,622 milreis, of which 58 per cent was from Portugal and a little over 7 per cent from the United States and Italy each; dried fruit, 1,879 tons, worth 1,978,163 milreis, of which 39 per cent was from Spain, 32 per cent from France, and 3 per cent from the United States; fresh fruits, 4,375 tons, worth 2,697,842 milreis, of which 34 per cent was from Portugal, 25 per cent from the United States, 17 per cent from Argentina, and 14 per cent from Spain; condensed milk, 4,005 tons, worth 4,396,388 milreis, practically all from Switzerland; butter, 1,966 tons, worth 4,609,461 milreis; cheese, 1,903 tons, worth 3,080,285 milreis; hams and bacon, 1,409 tons, worth 2,451,287 milreis, of which 64 per cent was from the United Kingdom and 25 per cent from the United States; canned meats and meat extracts, 353 tons, worth 851,309 milreis, of which 38 per cent was from Portugal, 30 per cent from Italy, 13 per cent from France, and 3 per cent from the United States; canned vegetables and vegetable extracts, 1,752 tons, worth 1,671,827 milreis, of which 34 per cent was from Italy, 21 per cent from France, and 18 per cent from Portugal; rice, 7,777 tons, worth 2,299,493 milreis; potatoes, 29,800 tons, worth 4,409,552 milreis; spirits and fermented liquors, 1,546 tons, worth 2,578,553 milreis; champagne and sparkling wines, 224 tons, worth 1,197,361 milreis; fine wines, port and the like, 4,112 tons, worth, 6,742,447 milreis; common wines, 69,016 tons, worth 31,763,511 milreis; vermouth and bitters, 2,543 tons, worth 3,195,851 milreis; olive oil, 3,938 tons, worth 5,514,048 milreis; olives, 2,100 tons, worth 1,155,286 milreis; beans, 8,545 tons, worth 2,424,163 milreis; salt, 60,806 tons, worth 2,351,365 milreis; jerked beef, 14,371 tons, worth 10,977,245 milreis; tea, 360 tons, worth 838,682 milreis; spices, 1,737 tons, worth 1,479,073 milreis; onions, 5,952 tons, worth 1,483,764 milreis.

Under "Cattle food" the principal import was alfalfa, 29,410 tons, worth 2,108,122 milreis.

TRADE BY PORTS.

The following table shows the imports for the years 1910, 1911, 1912, and 1913, by ports of entry:

Port.	1910	1911	1912	1913
	Milreis paper.	*Milreis paper.*	*Milreis paper.*	*Milreis paper.*
Rio de Janeiro	264,315,341	289,384,706	371,294,687	392,329,449
Santos	141,799,918	191,413,945	248,698,304	273,103,188
Recife (Pernambuco)	50,518,042	53,952,804	48,984,026	60,431,615
Bahia	37,235,251	40,785,090	51,965,023	53,185,249
Para	61,988,043	47,591,907	47,377,541	43,038,041
Porto Alegre	24,295,991	32,203,940	35,609,118	37,869,432
Rio Grande	21,310,633	22,970,955	23,899,774	27,713,309
Manaos	35,099,396	25,108,151	22,940,146	19,764,352
Paranagua	9,206,829	11,368,011	17,162,209	14,321,352
Fortaleza	10,799,684	13,198,526	12,840,034	14,181,522
Maceio	7,073,158	7,592,973	7,638,069	10,301,417
San Luiz	9,054,800	9,548,099	9,986,658	8,581,141
Pelotas	4,806,739	5,172,303	6,888,213	8,521,890
Cabedello	3,355,001	5,252,121	4,189,079	5,072,856
Corumba	5,697,423	6,625,546	3,890,757	4,214,794
Victoria	1,979,715	5,017,395	6,322,118	3,752,789
Uruguayana	3,737,331	1,710,187	3,716,305	3,429,403
Sao Francisco	2,144,146	1,770,651	1,786,375	2,032,773
All other ports	19,345,702	23,049,136	26,201,122	25,650,828
Total	713,863,143	793,716,446	951,369,558	1,007,495,400
United States gold	$231,291,658	$257,164,128	$308,243,736	$326,428,509

EXPORTS.

The exports by countries for the years 1909, 1010, 1911, 1912, and 1913 were as follows:

Countries.	1909	1910	1911	1912	1913
United States	$123,817,298	$110,144,357	$115,855,767	$141,914,885	$102,562,923
Germany	48,130,450	35,626,014	47,212,339	51,928,195	44,392,410
United Kingdom	49,832,180	72,105,203	48,920,995	43,065,547	41,701,815
France	26,514,120	25,641,738	25,739,496	35,514,990	38,685,561
Netherlands	14,390,172	15,011,081	26,447,406	22,981,062	23,252,700
Austria-Hungary	10,261,295	8,844,173	16,759,363	18,257,967	15,206,015
Argentina	10,229,459	11,406,866	12,703,252	14,228,993	14,848,459
Belgium	6,492,082	5,509,604	7,796,618	9,729,467	8,093,433
Uruguay	5,203,043	5,569,335	4,444,054	4,161,471	5,166,591
Italy	2,651,878	2,054,128	3,747,560	4,096,106	4,067,274
Sweden	.....	.....	3,163,665	3,118,046	3,194,416
Spain	1,062,270	1,075,486	1,676,291	2,112,439	1,809,541
Portugal	905,968	819,227	1,487,288	768,922	1,589,071
Chile	.....	.....	700,207	998,120	873,213
Denmark	.....	.....	442,964	900,446	733,583
Other countries	8,841,614	10,562,655	8,084,349	9,018,190	8,987,682
Total	308,331,829	304,369,957	325,271,614	362,794,846	315,164,687

Exports are divided into three major classifications, as follows:

	1910	1911	1912	1913
	Milreis paper.	*Milreis paper.*	*Milreis paper.*	*Milreis paper.*
Class I.—Animals and animal products	41,089,441	41,506,812	46,735,249	49,971,430
Class II.—Minerals and mineral products	14,955,730	13,983,096	13,257,147	10,590,148
Class III.—Vegetable products	883,368,278	948,434,828	1,059,744,784	912,168,938
Total	939,413,449	1,003,924,736	1,119,737,180	972,730,516
United States gold	$304,369,957	$325,271,614	$362,794,846	$315,164,687

The principal animal products exported in 1913 were: Whale oil, 922 tons, worth 183,567 milreis; lard, 25 tons, worth 28,839 milreis; beeswax, 121 tons, worth 235,734 milreis; horns, 1,227 tons, worth 397,514 milreis; bone ash, 2,316 tons, worth 51,740 milreis; cattle hides, 35,075 tons, worth 33,389,803 milreis (25,795 tons salt, worth 18,953,769 milreis, and 9,280 tons dry, worth 14,435,816 milreis) of which 9,892 tons went to France, 9,823 tons to Germany, 2,100 tons to Belgium, 1,585 tons to Uruguay, 1,122 tons to the United States, 775 tons to Portugal, with lesser amounts to the United Kingdom, Italy, and Austria-Hungary; horsehair, 376 tons, worth 459,507 milreis; wool, 1,288 tons, worth 1,182,467 milreis; tongues, 439 tons, worth 1,202,324 milreis; skins, 3,232 tons, worth 11,564,739 milreis (goatskins, 2,296 tons, worth 9,079,173 milreis; sheepskins, 669 tons, worth 1,895,991 milreis; deerskins, 176 tons, worth 369,763 milreis; lambskins, 54 tons, worth 115,128 milreis; not specified, 37 tons, worth 104,684 milreis), of which 2,373 tons went to the United States, 487 tons to France, 231 tons to the United Kingdom, and 104 tons to Germany.

Under "Minerals and mineral products" the principal exports were: Monazite sand, 1,437 tons, worth 576,261 milreis, of which 778 tons went to France, 400 tons to the United States, and 256 tons to Germany; manganese ore, 122,300 tons, worth 2,721,175 milreis, of which 59,400 tons went to the United States, 16,800 tons to the United Kingdom, 11,800 tons to Belgium, and 5,000 tons to Germany; scrap metal, 5,334 tons, worth 696,003 milreis; gold in bars, 3,392,635 grams, worth 5,512,429 milreis, practically all to the United Kingdom; diamonds and other precious stones worth 537,906 milreis.

Under "Vegetable products," the principal exports were:

Coffee, 36,267,449 sacks (of 60 kilos or 132.27 pounds each), worth 611,669,673 milreis. The following table shows the coffee exports to the principal countries in 1910, 1911, 1912, and 1913:

	1910		1911		1912		1913	
	Bags.	Value.	Bags.	Value.	Bags.	Value.	Bags.	Value.
United States	4,501,887	$58,808,467	4,444,973	$77,512,293	5,092,661	$95,390,633	4,914,730	$73,413,072
Germany	1,219,924	16,152,259	1,603,991	31,732,936	1,820,407	34,098,043	1,865,632	27,867,695
France	660,496	8,858,666	874,928	15,092,424	1,187,268	22,238,717	1,846,944	27,588,552
Netherlands	1,077,605	14,772,522	1,413,412	25,763,209	1,183,255	22,163,549	1,483,097	22,153,470
Austria Hungary	689,035	8,720,658	967,677	16,600,849	957,886	17,942,163	1,016,824	15,188,720
Belgium [1]					405,583	7,596,975	444,988	6,647,026
Argentina	193,225	2,474,582	225,187	3,823,757	237,169	4,442,413	249,045	3,720,090
Italy	136,392	1,734,834	204,933	3,481,518	205,605	3,851,188	237,126	3,542,056
United Kingdom	217,763	2,855,274	270,114	4,692,373	171,251	3,206,766	246,161	3,677,012
Other countries	1,027,411	12,835,603	1,052,587	17,816,020	819,268	15,341,816	962,902	14,383,281
Total	9,723,738	127,212,875	11,257,802	196,515,379	12,080,303	226,272,263	13,267,449	198,180,974

[1] In 1910 and 1911 included under "Other countries."

Rubber, 36,232 tons, worth 155,630,906 milreis ($50,424,414). Of the various varieties of rubber, the exports were: 34,435 tons seringa, worth 150,374,013 milreis; 1,555 tons manicoba, worth 4,667,874 milreis; 226 tons mangabeira, worth 551,770 milreis; and 15 tons sorva, worth 37,249 milreis. About 43 per cent of the exports of rubber went to the United States, 41 per cent to the United Kingdom; of the remainder the bulk went to France.

Cotton, 37,427 tons, worth 34,615,201 milreis, of which 29,959 tons went to the United Kingdom, 3,210 tons to Portugal, and 1,913 tons to France; sugar, 5,367 tons, worth 971,901 milreis, of which 5,134 tons went to the United Kingdom; cottonseed, 49,779 tons, worth 3,585,851 milreis, of which 96 per cent in value went to the United

Kingdom and about 2 per cent to Germany; carnauba wax, 3,867 tons, worth 6,592,653 milreis, of which 1,701 tons went to Germany, 941 tons to the United States and France each, and 509 tons to the United Kingdom; bran, 54,814 tons, worth 4,856,913 milreis, of which 42,933 tons went to Germany, 7,326 tons to Belgium, and 2,149 tons to the United Kingdom; manioc flour 4,687 tons, worth 675,049 milreis; bananas, 2,839,588 bunches, worth 2,319,476 milreis; Brazil nuts, 82,264 hectoliters (233,444 bushels), worth 2,463,869 milreis, of which 40,490 hectoliters went to the United Kingdom, 35,892 hectoliters to the United States, and 5,586 hectoliters to Germany; tobacco, 29,388 tons, worth 24,569,839 milreis, of which 24,473 tons went to Germany, 4,359 tons to Argentina, and 343 tons to Uruguay; woods were exported to the value of 1,731,630 milreis; piassava (fiber), 1,447 tons, worth 574,465 milreis; cacao, 29,759 tons, worth 23,904,131 milreis, of which 10,051 tons went to the United States, 7,954 tons to the United Kingdom, 4,783 tons to France, and 3,678 tons to Germany; yerba maté, 65,415 tons, worth 35,456,172 milreis, of which 49,456 tons went to Argentina, 13,109 tons to Uruguay, and 2,265 tons to Chile.

The following table shows the distribution of Brazilian export trade by ports for the years 1910, 1911, 1912, and 1913:

	1910	1911	1912	1913
	Milreis paper.	*Milreis paper.*	*Milreis paper.*	*Milreis paper.*
Santos	282,142,602	480,899,954	530,135,051	490,279,306
Rio de Janeiro	115,360,229	121,819,726	158,918,719	119,508,758
Manãos	181,238,391	119,351,659	115,476,721	76,703,541
Para	168,751,046	93,247,097	116,112,152	74,725,014
Bahia	67,308,266	62,781,883	67,772,535	61,812,271
Victoria	9,644,137	15,115,312	24,106,573	20,072,203
Recife	19,302,627	19,445,822	13,893,221	19,569,878
Antonina	14,266,965	16,892,338	18,889,120	17,652,680
Rio Grande	10,684,861	10,288,345	12,701,427	12,824,984
Fortaleza	11,698,299	11,511,436	10,888,365	11,991,972
Paranagua	6,990,536	6,947,958	6,356,867	11,074,735
Cabedello	5,457,369	4,037,350	7,991,974	11,901,903
Maranhão	6,431,386	7,617,420	6,539,564	9,888,129
Natal	3,113,488	3,933,385	3,896,702	6,209,621
Maceio	5,383,785	3,621,139	3,881,559	4,685,537
Corumbo	8,822,156	5,950,052	2,233,987	1,191,496
Pelotas	1,493,699	2,591,325	1,185,185	2,862,235
Porto Alegre	6,931,089	5,916,789	3,943,164	2,841,273
Florianopolis	1,174,818	1,105,556	816,438	613,983
All other ports	10,217,100	10,850,190	9,224,089	13,320,997
Total	939,413,449	1,003,924,736	1,119,737,180	972,730,516
United States gold	$304,369,957	$325,271,614	$362,794,846	$315,164,687

SUBJECT MATTER OF CONSULAR REPORTS

REPORTS RECEIVED TO JANUARY 1, 1915.[1]

Title.	Date.	Author.
ARGENTINA.	1914.	
Milling and mill equipment	Sept. 10	William Dawson, jr., consul, Rosario.
Report on tobacco growing, consumption and prices.	Sept. 24	Do.
Importations of glass (plain and plate glass)	Sept. 30	Leo J. Keena, consul general, Buenos Aires.
Surveying instruments (dealers)	Oct. 1	William Dawson, jr., consul, Rosario.
Electric concerns in Rosario	...do	Do.
Soil pipe and fittings (list of firms installing house drainage).	...do	Do.
Project for construction of workmen's dwellings	...do	Do.
Motor cars	...do	Do.
Perfumery; duty	...do	Do.
Jewelry in Rosario district; duties	Oct. 2	Do.
Cotton thread and yarn	Oct. 3	Leo J. Keena, consul general, Buenos Aires.
Imports of lumber, 1912–13	Oct. 5	Do.
Lathes	Oct. 7	William Dawson, jr., consul, Rosario.
Construction work (list of architects and building contractors).	...do	Do.
Beer; brewing industry in Argentina	Oct. 8	Do.
Factories in Argentina producing macaroni, etc	...do	Do.
Dealers in typewriters	...do	Do.
Shoes	...do	Do.
Boys' and young men's clothing	Oct. 10	Do.
Railway notes	...do	Do.
Importation of umbrellas and parasols	Oct. 13	Do.
General publicity advertising in Argentina	...do	Leo J. Keena, consul general, Buenos Aires.
Shoe ornaments	Oct. 15	William Dawson, jr., consul, Rosario.
Market for furniture	...do	Do.
Locomotives	Oct. 19	Do.
Import and export trade of Argentina, 1913	Oct. 20	Leo J. Keena, consul general, Buenos Aires.
Trade extension	Oct. 22	William Dawson, jr., consul, Rosario.
Farm choppers and grinders	Oct. 23	Do.
Farm wagons	Oct. 24	Do.
Tailoring	...do	Do.
Conduit	...do	Do.
Hops	Oct. 26	Do.
Women's clothing	Oct. 27	Do.
First American steamship to sail from North Basin, Buenos Aires.	...do	Leo J. Keena, consul general, Buenos Aires.
Trade extension	...do	Do.
Wool statistics	Oct. 28	Do.
Shoe cement	...do	William Dawson, jr., consul, Rosario.
Films	Oct. 30	Do.
Conduit piping	Nov. 6	Leo J. Keena, consul general, Buenos Aires.
Automobiles, duties	...do	Do.
Oil fields	Nov. 9	Do.
Trade extension	...do	William Dawson, jr., consul, Rosario.
Calf leather	Nov. 10	Do.
Tobacco flavoring and supplies	...do	Do.
Production of milk, and dairy products	...do	Leo J. Keena, consul general, Buenos Aires.
Importation of umbrellas and parasols	...do	Do.
Importers of garden seeds	Nov. 11	William Dawson, jr., consul, Rosario.
Shipment of "feeder steers"	...do	Do.
Beer and soda water bottles	Nov. 12	Do.
Soap manufacturers	Nov. 14	Do.
BRAZIL.		
Roofing waterproof papers	Sept. 26	P. Merrill Griffith, consul, Pernambuco.
Commerce and industries of district for 1913	Sept. 30	Maddin Summers, consul, Santos.
Importation and production of woolen and worsted fabrics.	Oct. 10	Albro L. Burnell, vice consul general, Rio de Janeiro.
Commercial conditions	Oct. 13	P. Merrill Griffith, consul, Pernambuco.
Advertising agencies	Nov. 3	Albro L. Burnell, vice consul general, Rio de Janeiro.
Box shooks	Nov. 10	Do.
Exports of crude rubber	Nov. 11	Geo. H. Pickerell, consul, Para.

[1] This does not represent a complete list of the reports made by the consular officers in Latin America, but merely those that are supplied to the Pan American Union as likely to be of service to this organization.

Reports received to January 1, 1915—Continued.

Title.	Date.	Author.
CHILE.	1914.	
Trade notes	Oct. 9	David J. D. Myers, consul, Iquique.
Trade extension, notes to manufacturers	Oct. 13	Do.
Suction sweepers (no market)	...do...	Do.
Malt liquors	...do...	Do.
Dealers in electrical apparatus and supplies	Oct. 14	Do.
Plumbers' supplies	...do...	Do.
Blankets, auto robes, etc	...do...	Do.
Dealers in crude and refined oils	...do...	Do.
Chemicals	...do...	Do.
Silverware (dealers in jewelry)	...do...	Do.
Shears and scissors	...do...	Do.
Shoe ornaments	Oct. 15	Do.
Dealers in mineral waters	...do...	Do.
Motor cars	...do...	Do.
Trade extension	...do...	Do.
Quadruple-drive truck	Oct. 19	Do.
Trade extension	...do...	Do.
Exports from Iquique to the United States for 1913	...do...	Do.
Duty on boxes and labels	...do...	Do.
Gas engines	...do...	Do.
Coal	...do...	A. B. Easterling, vice consul, Valparaiso.
Women's shoes	Oct. 20	David J. D. Myers, consul, Iquique.
Trade extension; automobile accessories; hardware specialties.	...do...	Do.
Macaroni, noodles, spaghetti, etc	...do...	Do.
Wireless telegraph notes	Oct. 21	Do.
Lighthouse note	...do...	Do.
History of the Chilean Transandine Railway	(1)	Hon. Henry P. Fletcher, United States ambassador, Santiago.
Cobbling machines	Oct. 23	A. B. Easterling, vice consul, Valparaiso.
Wagons	...do...	Do.
Refrigerators	Oct. 27	David J. D. Myers, consul, Iquique.
Rubber cements (small market)	...do...	Do.
Dentist's instruments and supplies	...do...	Do.
Stoves	...do...	Do.
Cosmetics	...do...	Do.
Surveying instruments	Oct. 28	Do.
Construction work	...do...	Do.
Oils, lubricants, and paints	...do...	Do.
Tar products	...do...	Do.
Bags and bagging (list of importers)	...do...	Do.
Imports of shoes for 1913	...do...	Do.
List of shippers of nitrate of soda	...do...	Do.
Leather goods imports, 1913	...do...	Do.
Rubber tires	Oct. 29	Do.
Machinery	...do...	Do.
Pharmaceutical products (list of dealers)	...do...	Do.
List of commission agents, groceries and provisions	...do...	Do.
Trade extension	...do...	Do.
Candles; importation and duties	Oct. 30	Do.
Pumps	...do...	Do.
Lists of jewelers, schools, clubs, societies, etc., in Iquique.	...do...	Do.
Motion picture films	...do...	Do.
Importers and dealers in paints and varnishes	Oct. 31	Do.
Patents	...do...	Do.
Engraving	...do...	Do.
Coal tar	Nov. 9	A. B. Easterling, vice consul in charge, Valparaiso.
Cemetery memorials	Nov. 10	David J. D. Myers, consul, Iquique.
Hospitals	...do...	Do.
Importers of machinery	...do...	Do.
Luggage (little market)	Nov. 11	Do.
Dealers in telephone supplies	...do...	Do.
Automobiles, dealers	...do...	Do.
List of importers and dealers in paper	Nov. 12	Do.
COLOMBIA.		
Yarn, kinds used; dealers	Oct. 3	Harold B. Meyerheim, consular agent, Medellin.
Church candles	Oct. 6	Do.
Banana shipments	Oct. 12	Isaac A. Manning, consul, Barranquilla.
Trade extension	Oct. 14	Do.
Automobiles	Oct. 20	Harold B. Meyerheim, consular agent, Medellin.
Coal	...do...	Do.

[1] Undated.

Courtesy of The Sphere.

THE COLUMBUS STATUE AT RAPALLO, ITALY.

The recent unveiling of the beautiful monument at Rapallo, Italy, again directs attention to the fact that American sculptors are attaining the highest rank in the world of art. This monument is the work of Arturo Dresco, the noted Argentine sculptor, who has attained international fame by his artistic achievements.

Reports received to January 1, 1915—Continued.

Title.	Date.	Author.
COLOMBIA—continued.	1914.	
Hotels in South America	Oct. 25	Isaac A. Manning, consul, Barranquilla.
List of commercial houses in Barranquilla consular district.	...do.....	Do.
Automobiles	Oct. 28	Do.
Leather goods	Oct. 30	Hon. Thad. A. Thomson, United States minister, Bogota.
Dealers in general machinery	...do.....	Do.
Pharmaceutical supplies	...do.....	Do.
Trunks; dealers	...do.....	Do.
Shoes; dealers	...do.....	Do.
Paints and varnishes; dealers	...do.....	Do.
Stoves	Nov. 6	Do.
School books; lists of schools and bookstores	...do.....	Do.
Belting and upholstery supplies; dealers	...do.....	Do.
Motion picture films	...do.....	William A. Trout, consular agent, Santa Marta.
Box shooks and crating	Nov. 10	Isaac A. Manning, consul, Barranquilla.
Chemicals; list of druggists	Nov. 13	Leland Harrison, chargé d'affaires ad interim, Bogota.
List of newspapers and printing establishments	...do.....	Do.
Dealers in machinery	...do.....	Do.
Blankets, rugs, etc.; dealers	...do.....	Do.
Cigar ties	...do.....	Do.
Hardware dealers	...do.....	Do.
Trade extension	...do.....	Do.
Dealers in vegetable ivory and pearl buttons	...do.....	Do.
Duties on silk gloves, underwear, and hosiery; dealers.	Nov. 15	Do.
Stoves; dealers	Nov. 20	Do.
Bookstores	...do.....	Do.
Canned fish; dealers	...do.....	Do.
Beer imports	Nov. 24	Ross Hazeltine, consul, Cartagena.
Battery lighting	Dec. 2	Do.
Marine engines	...do.....	Do.
Trade extension	Dec. 3	Do.
Toilet preparations	...do.....	Do.
Paints and varnishes	...do.....	Do.
Men's work pants	...do.....	Do.
CUBA.		
New Cuban service of the United Fruit Co	Nov. 7	James L. Rodgers, consul general, Habana.
DOMINICAN REPUBLIC.		
Umbrellas and parasols; dealers	Oct. 3	Charles H. Albrecht, vice and deputy consul, Santo Domingo.
Plumbing supplies	Oct. 12	Frank Anderson Henry, consul, Puerto Plata.
Flower and garden seeds	Oct. 15	Charles H. Albrecht, vice and deputy consul, Santo Domingo.
Shoes	...do.....	Do.
Beer	Oct. 19	Do.
Men's furnishings	...do.....	Do.
Shoe dealers; dentists	...do.....	G. Cameron, consular agent, San Pedro de Macoris.
Fruits and vegetables; duties	Oct. 20	Charles H. Albrecht, vice and deputy consul, Santo Domingo.
Shears and scissors	Oct. 21	Do.
Trade extension	...do.....	Do.
Fruits and vegetables	Oct. 26	Do.
House trimmings	Oct. 31	Frank Anderson Henry, consul, Puerto Plata.
Shooks	Nov. 2	Do.
Market for cement in northern provinces	Nov. 18	Do.
ECUADOR.		
Market for bottles, glassware, and dishes; imports and duties.	Oct. 28	Chas. F. Baker, consul, Guayaquil.
Statistics of imports for 1911–13	Nov. 1	Do.
HONDURAS.		
Candies	Sept. 20	E. M. Lawton, consul, Tegucigalpa.
Lubricating oils	...do.....	Do.
Umbrellas	...do.....	Do.
Women's shoes	Sept. 30	Do.
Chemicals	Oct. 8	Do.
Shafting	...do.....	John A. Gamon, consul, Puerto Cortez

Courtesy of Technical World Magazine.

A SEA OF CLOUDS—FROM THE SUMMIT OF MT. TAMALPAIS, CALIFORNIA.

Only a little part of the mountain top is visible through this veritable ocean of clouds. Tamalpais is one of the picturesque suburbs of San Francisco.

Reports received to January 1, 1915—Continued.

Title.	Date.	Author.
HONDURAS—continued.	1914.	
Cold storage	Oct. 3	Walter F. Boyle, consul, Ceiba.
Candles	Oct. 9	Do.
Dairying	...do.....	Do.
Printing	...do.....	Do.
Youths' suits	...do.....	Do.
Blankets	...do.....	Do.
Beer	...do.....	Do.
Metal goods	...do.....	Do.
Motion pictures	...do.....	Do.
Shoes	...do.....	Do.
Plumbing supplies	...do.....	Do.
Metal beds	Oct. 9	Do.
Cement	...do.....	Do.
Paints	...do.....	Do.
Trade extension	Oct. 15	E. M. Lawton, consul, Tegucigalpa.
Trunks	...do.....	Do.
Fertilizing (little done)	...do.....	Do.
Marine engines (little market)	...do.....	John A. Gamon, consul, Puerto Cortez.
Imports of fruit	Oct. 19	E. M. Lawton, consul, Tegucigalpa.
Axle grease, etc	...do.....	Do.
Electrical supplies	...do.....	Do.
Gas engines	...do.....	A. R. Gordon, consular agent, San Juancito.
Pumps (no market)	...do.....	Do.
Box shooks	Oct. 20	Walter F. Boyle, consul, Ceiba.
Perfumes and toilet requisites	...do.....	Do.
Lumber trade of the United States with Honduras	Oct. 21	Do.
Waterworks and sewer system	...do.....	John A. Gamon, consul, Puerto Cortez.
Trunks	Oct. 22	Do.
List of dentists	Oct. 26	E. M. Lawton, consul, Tegucigalpa.
Construction work	...do.....	Do.
Ready-made clothing	...do.....	Do.
Plaster and cement	Oct. 29	John A. Gamon, consul, Puerto Cortez.
Paints and varnishes	...do.....	Do.
List of general merchants	Oct. 30	Do.
Wire; list of dealers	...do.....	Do.
Lumber importers	...do.....	Do.
Hops	Oct. 31	E. M. Lawton, consul, Tegucigalpa.
Dealers in seeds and vegetables	...do.....	Do.
Monuments	...do.....	Do.
Millinery goods (little market)	Nov. 1	Do.
Heavier rails on Vaccaro Railroad	...do.....	Walter F. Boyle, consul, Ceiba.
Shed for banana trains	...do.....	Do.
Machinery	Nov. 2	E. M. Lawton, consul, Tegucigalpa.
House trimmings, such as bronze or other metal grills (little market).	Nov. 3	Do.
Shears	...do.....	Do.
List of shoe dealers	Nov. 7	J. M. Mitchell, Jr., consular agent, San Pedro Sula.
Importers of beer	...do.....	John A. Gamon, consul, Pureto Cortez.
Dentists	Nov. 9	J. M. Mitchell, jr., consular agent, San Pedro Sula.
Dealers in underwear	Nov. 10	Do.
Livery supplies	Nov. 11	Do.
Saddles and saddle blankets	...do.....	John A. Gamon, consul, Puerto Cortez.
Wire fencing; nails; dealers	...do.....	E. M. Lawton, consul, Tegucigalpa.
Suspenders	...do.....	Do.
House trimmings	...do.....	Do.
Dealers in paints	...do.....	Do.
Cutlery	Nov. 12	John A. Gamon, consul, Puerto Cortez.
Dealers in furniture	...do.....	Do.
Dealers in saddlery and harness	...do.....	Do.
Fertilizers (no market)	...do.....	Do.
Office furniture (little market)	Nov. 13	E. M. Lawton, consul, Tegucigalpa.
Iron piping	Nov. 14	H. Jesse, consular agent, Amapala.
Dealers in cosmetics	Nov. 15	Do.
Shoe dealers	Nov. 16	Do.
List of dealers in clothing and shoes	...do.....	Do.
Dealers in butter in tins	Nov. 19	E. M. Lawton, consul, Tegucigalpa.
Adding machines (little used)	...do.....	Do.
Cotton fabrics and list of merchants	Nov. 20	Do.
Hardware and woodenware specialties	Nov. 21	Do.
Harness and saddlery	...do.....	Do.
Water power	Nov. 28	Do.
Photo plates	Nov. 30	Do.
Garden seeds; dealers	...do.....	Do.
Gas and water systems	Dec. 2	Do.
Pianos; dealers	Dec. 3	J. M. Mitchell, jr., consular agent, San Pedro Sula.

Reports received to January 1, 1915—Continued.

Title.	Date.	Author.
MEXICO.	1914.	
Dentists	Oct. 17	Wilbert L. Bonney, consul, San Luis Potosi.
Agricultural machinery and implements	Oct. 19	Do.
Expected shortage of goatskins for export	...do.....	Do.
Spraying devices unknown	...do.....	T. C. Hamm, consul, Durango.
Water transportation on west coast	Oct. 21	A. Gordon Brown, consul, Mazatlan.
Opening for general mercantile importing and exporting house.	...do.....	Louis Hostetter, consul, Hermosillo.
Engines	Oct. 22	Do.
New oil refinery	Oct. 23	Thomas H. Bevan, consul, Tampico.
Coaling facilities	...do.....	Wm. W. Canada, consul, Vera Cruz.
Market for cement in district	...do.....	Do.
Charcoal	Oct. 24	Do.
Coffee production	...do.....	A. Gordon Brown, consul, Mazatlan.
Corrugated double-faced strawboard	...do.....	Marion Letcher, consul Chihuahua.
Men's furnishings	Oct. 26	Wm. W. Canada, consul, Vera Cruz.
Tire-repair accessories	Oct. 27	Do.
Wire	...do.....	Do.
Stationary engines; underwear; engineering work.	Oct. 29	Wilbert L. Bonney, consul, San Luis Potosi.
Wire	...do.....	Do.
Coal and coke	...do.....	Do.
Automobile trucks	...do.....	Do.
Engines	...do.....	Do.
Rubber sundries	...do.....	Do.
Ameters and voltameters (little market)	...do.....	Wm. W. Canada, consul, Vera Cruz.
Auto trucks	...do.....	Marion Letcher, consul Chihuahua.
Lists of druggists and hospitals	...do.....	Louis Hostetter, consul, Hermosillo.
Tampico oil notes and shipments	Nov. 4	Thomas H. Bevan, vice consul in charge, Tampico.
Gas engines	...do.....	Do.
Lathe and drill chucks	Nov. 4	Wm. W. Canada, consul, Veracruz.
Shooks	...do.....	Do.
Trade extension	Nov. 5	Do.
Saddlery and harness	...do.....	Marion Letcher, consul, Chihuahua.
Steam coal	Nov. 7	Philip C. Hanna, consul, Monterey.
Bicycles and motor cycles; dealers	Nov. 14	Wm. W. Canada, consul, Veracruz.
List of dealers in vehicles	Nov. 23	Marion Letcher, consul, Chihuahua.
Local trade in cocoa and chocolate	...do.....	Do.
Trade extension	...do.....	Do.
Vehicles	Nov. 24	Wm. W. Canada, consul, Veracruz.
Curio dealers	...do.....	Do.
Cocoas and chocolates	Nov. 26	Do.
Canned goods	Nov. 27	Marion Letcher, consul, Chihuahua.
Canned salmon	Nov. 30	Do.
Dealers in hardwood	...do.....	Louis Hostetter, consul, Hermosillo.
Lumber importers	...do.....	Wm. W. Canada, consul, Veracruz.
Firms possibly interested in fire and water proof building fittings.	Dec. 1	Marion Letcher, consul, Chihuahua.
Electrical supplies	Dec. 11	Do.
NICARAGUA.		
Flavors and toilet articles	Oct. 20	Cornelius Ferris, jr., consul, Bluefields.
Millwork	Oct. 29	Do.
Wheels and turbines	...do.....	Do.
Tobacco imports; duties	Oct. 31	Do.
Perfumery and toilet preparations; lists of dealers.	Nov. 1	Harold D. Clum, consul, Corinto.
Firms handling luggage	Nov. 2	Do.
List of shoe dealers	...do.....	Do.
Hospitals	...do.....	Do.
Vegetable and flower seeds	...do.....	Do.
Leather	Nov. 3	Cornelius Ferris, jr., consul, Bluefields.
Paints and varnishes (little market)	Nov. 4	Do.
Explosives	...do.....	Do.
Paints	Nov. 14	Do.
PANAMA.		
Parafin papers	Oct. 7	A. G. Snyder, consul general, Panama.
Overalls	...do.....	Wm. H. Gale, consul, Colon.
Duty on motion-picture films	Oct. 8	A. G. Snyder, consul general, Panama.
Garden seeds	Oct. 24	Do.
Railroad equipment	...do.....	Do.
Lubricating oils	...do.....	Do.
Monuments for cemetery memorials	...do.....	Do.
Statistics for first six months 1913	Nov. 20	Do.
Trade extension	Dec. 8	Wm. H. Gale, consul, Colon.

Reports received to January 1, 1915—Continued.

Title.	Date.	Author.
PARAGUAY.		
	1914.	
Motion pictures in Paraguay	Oct. 24	Samuel Hamilton Wiley, consul, Asuncion.
Imports of beer; duties	Oct. 28	Do.
Farm wagons; type used	Oct. 29	Do.
PERU.		
Trade extension; paints and varnishes; lard; condensed milk; lumber; hops; engines; cement; cordage; cotton manufactures; hardware; silk manufactures; wines and liquors; vehicles; automobiles; soap; agricultural machinery; list of cotton plantations; list of sugar plantations; explosives; canned meats; electrical appliances; leather goods; preserved fruits.	Sept. 19	Wm. W. Handley, consul general, Callao.
Hotels for South America	Oct. 31	Do.
URUGUAY.		
Market for olives and olive oil	Sept. 30	Herman L. Spalz, consul, Montevideo.
Sale of food and drug preparations in Montevideo	Oct. 15	Do.
Linoleum (little market)	Oct. 17	Do.
VENEZUELA.		
Moving pictures	Sept. 15	Richard J. Biggs, consular agent, Caracas.
Lumber	Sept. 25	Edward B. Cipriani, vice consul, La Guaira.
Parasols	...do....	Do.
Furniture	Sept. 26	Do.
Dealers in linoleum	...do....	Do.
Dealers in cocoa	...do....	Do.
Sugar	Sept. 29	Herbert B. Wright, consul, Puerto Cabello.
Coal	Sept. 30	Edward B. Cipriani, vice consul, La Guaira.
Toilet preparations	Oct. 2	Do.
Automobiles	Oct. 3	Do.
Bags and bagging	Oct. 10	Do.
Beer	...do....	Do.
Leather	...do....	Do.
Fruit	Oct. 12	Do.
Coal	...do....	Herbert B. Wright, consul, Puerto Cabello.
Chemicals	Oct. 13	Do.
Jellies and preserved fruits	...do....	Edward B. Cipriani, vice consul, La Guaira.
Automobiles	Oct. 20	Do.
Paints	Oct. 21	Do.
List of builders	Oct. 23	Do.
Calcium carbide	Oct. 26	Do.
Jewelry	Nov. 3	Thomas W. Voetter, consul, La Guaira.
Cast-iron pipe	...do....	Do.
Material for cemetery use; dealers in monuments	Nov. 9	Do.
Rolled oats and oatmeal	...do....	Do.
Felt; duty	Nov. 11	Do.
Importers of fire brick	...do....	Do.
Exports of cattle and goat hair	Nov. 16	Do.
Tobacco; cigarette factories	Nov. 17	Do.
Vacuum cleaners (small sale)	...do....	Do.
Harness; imports and duty	...do....	Do.
Bicycles and motorcycles; dealers	Nov. 18	Do.
List of flour importers	Nov. 19	Do.
Adding machines; list of dealers	Nov. 23	Do.

ARGENTINE REPUBLIC

The department of public works of the Argentine Government has accepted bids for the PAVING of the streets of the Federal capital amounting to 3,851,440 pesos national currency ($1,656,000).——Dr. Leo S. Rowe, president of the North American Academy of Political Sciences, who has recently traveled extensively through southern Argentina, writes in the most glowing and enthusiastic terms of the brilliant future of that part of the Republic, which only needs immigration and capital to develop its wonderful resources. Abundant water power exists in this section of Argentina, and a number of industries, such as the manufacture of cloth, paper, furniture, and the tanning of hides, have already been established.——The MONUMENT, consisting of a beautiful and artistically constructed fountain, presented to the Argentine Government by the German colony of the city of Buenos Aires in honor of the first centenary of national independence, was recently unveiled in one of the parks of the Federal capital.——During the first nine months of last year the IMPORTS of the Argentine Republic amounted to 227,257,258 gold pesos, and the exports to 269,446,430 gold pesos. The principal countries from which imports were obtained were: United Kingdom, 77,962,426 gold pesos; Germany, 37,556,879; United States, 28,747,582; France, 20,008,367; Italy, 19,848,334; Belgium, 11,573,887; Spain, 6,956,945, and Brazil, 6,728,340 gold pesos. The principal countries to which exports were sent were: Great Britain, 73,619,719; United States, 32,026,981; Germany, 30,731,422; Belgium, 17,505,887; France, 17,207,696; Brazil, 13,662,355; Netherlands, 8,526,997, and Italy, 4,074,434 gold pesos.——The Santa Lucia River in the Province of Corrientes, which was obstructed by sand bars for a distance of 35 kilometers, has been dredged and opened to NAVIGATION.——The WHEAT crop of the Argentine Republic is estimated at 5,500,000 tons, 4,000,000 tons of which can be exported.——A valuable QUICKSILVER mine has been discovered in the Province of Salta.——An ELECTRIC light and power company with a capital of 100,000 pesos, currency ($42,500), has been organized at Villa Mercedes, by the principal business men of that city.——Plans have been presented to the department of public works for the IRRIGATION of 1,500 hectares of rich agricultural land situated at Belen in Catamarca, and Choel Choel in Rio Negro. It is proposed to expend 100,000 pesos ($42,500) in these works.——Enrique P. Paz of the city of Buenos Aires has been elected president of the TOURING CLUB for 1915, and Francisco M. Cesar, secretary. The MUTUAL

and COOPERATIVE societies of the Argentine Republic increased from 34 in 1913 to 56 in 1914, and the number of members from 13,371 in 1913 to 19,531 in 1914.——The CHILDREN'S CONGRESS (Congreso Americano del Niño) will be held in Tucuman, Argentine Republic, in July, 1916. The congress is divided into the following sections: Law, hygiene, psychology and anthropology, education, helps for mother and child, sociology, and industrial law.

BOLIVIA

Work has been commenced on the Telefunken WIRELESS telegraph station at Esteros. Stations of this same system have been in operation for some time at Caixa D'Orbigny and Ballivian.——The President of the Republic has submitted to Congress a bill authorizing the postponement until 1916 of the issue of military BONDS and bonds of the internal debt. The Executive has likewise introduced into Congress a bill prescribing the manner and form of bonding customhouse officers and other government employees engaged in the collection of the federal revenue.——A law of October 30, 1914, provides that the proceeds of the road tax of the city and Province of Oruro for 1915 and 1916 be applied to the cost of PAVING the streets of Oruro.——In order to reduce the amount of the national BUDGET for the next fiscal year, the legations of Bolivia in Brazil, Peru, France, Germany, and Ecuador, and the consulates at Mollendo, Cuzco, Antofagasta, and Arica have been suspended.——The chargé d'affaires of Bolivia in Buenos Aires has advised his Government that a rapid TRAIN SERVICE is to be established between the Argentine metropolis and Quiaca, Bolivia. The fast train will leave Buenos Aires on Saturdays at 7 p. m., arriving at Quiaca on Mondays at 8 p. m., and will return from Quiaca on Tuesdays at 7 a. m., arriving in Buenos Aires on Wednesdays at 8 p. m. Connection with Bolivian trains will be made at Quiaca so that passengers for Bolivian points may continue their journey on Tuesdays for Tupiza, at which place connection will be made with the train for Atocha and the journey continued to La Paz, passengers arriving at the latter city on Saturdays. This through train service will enable the journey between the Argentine and Bolivian capitals to be made in a week's time.——An executive decree of November 18, 1914, exempts from import duties for a period of five years machinery, apparatus and supplies for treating MEATS. Packing houses established in the Republic within the

term referred to, as well as the products of same, such as extract of beef, corned beef, salted beef, preserved meats, etc., are free from federal and export taxes for five years.——An executive decree of November 23 last called a SPECIAL SESSION OF CONGRESS to consider, among other things, the following subjects: National and departmental budgets; taxation of railways; exportation of woods and heron plumes; proposals for the exploitation of forests and gold and other ores in the eastern Territories; modification of the Marconi Wireless Telegraph Co.'s contract, and amendment of the customs laws.

BRAZIL

On October 31, 1914, a convention was signed between Brazil and Argentina establishing a direct interchange of the PARCEL POST service. The details of the plan have already been worked out and the service is in operation.——The ministry of agriculture has approved the project of establishing a Brazilian CHAMBER OF COMMERCE in Buenos Aires.——In the BOUNDARY DISPUTE between the States of Minas Geraes and Espiritu Santo the arbitration board recently rendered a decision favorable to the former.——According to advices from Montevideo Señor Temistocles Cardosa, a journalist of Rio de Janeiro, is formulating a plan to establish a NEWSPAPER, to be named O Brasil no Plata, in the Uruguayan capital. The avowed purpose of the publication will be to promote cordial relations between the two Republics, and incidentally to deal with international relations among the South American countries generally.——On November 22, 1914, a MONUMENT to Commander Baptista Neves was unveiled at the naval academy in Rio de Janeiro. In addition to the President of Brazil and a notable gathering of Brazilian officials, a rear admiral of the Argentine navy and the crew of the Argentine cruiser *Buenos Aires* attended the ceremonies and participated in the decoration of the monument.——At a recent session of the ACADEMY OF LETTERS of Brazil, held in Rio de Janeiro, the following officers were elected: President, Dr. Ruy Barbosa; secretary general, Señor Rodrigo Octavio; first secretary, Señor Augusto de Lima; second secretary, Señor Alcides Mayo; treasurer, Señor Feliuto Almeida; and librarian, Señor Olavo Bilac.——The second section of the Itapura to Corumba RAILWAY, comprising an extension of 221 kilometers of the road, which was commenced in November, 1913, was recently inaugurated. Work on

this line was commenced simultaneously at Itapura and Puerto Esperanza and the rails were joined at Rio Pardo August 30, 1914. The total length of the railroad will be 837 kilometers and it is to be completed by May, 1919.——According to an account published in El Ferrocarrill (Rio de Janerio, Brazil) of November 1, 1914, a Brazilian civil engineer has invented an AUTOMATIC ELECTRIC KEY for railroads which will serve to automatically operate the towers, signal system, switches, etc. The engineer on the train will be enabled to operate the mechanism from the engine, and will also be able to determine the distance of other trains on the same line, either in front or behind his train, and thus avoid many of the accidents due to the carelessness or inattention of telegraph operators, railway guards, and other employees.

CHILE

The President has promulgated the laws which authorize the expenditure of 1,700,000 gold pesos (gold peso=$0.365) for the SEWERING of Antofagasta and the sanitation of other cities in northern Chile.——During the latter part of November, 1914, the board of ministers (cabinet) approved a number of bills passed by the National Congress, among which were the following: A bill authorizing the executive to use 700,000 gold pesos in the payment of transportation and subsistence of UNEMPLOYED WORKMEN and their families, and for other necessary expenses caused by the temporary suspension of industrial enterprises; a bill authorizing the President to have coined SILVER PESOS not in excess of 15,000,000, and a bill authorizing the investment of 1,700,000 pesos in the construction of a BRANCH RAILWAY from Pintados Station on the Longitudinal Railroad to the port of Iquique.——According to data published by the bureau of statistics the areas sown in CEREALS in Chile in 1914 were as follows: Wheat, 517,065 hectares; barley, 90,469, and oats, 62,123 hectares. The yield of wheat in 1914–15 is calculated at 6,680,480 metric quintals or 8,564,718 fanegas.——Late in November of last year the first steamer of a Danish company, which has just commenced a STEAMSHIP SERVICE between the Scandinavian countries and South America anchored in the port of Valparaiso. The vessels of this company use petroleum as fuel and carry a sufficient quantity for the round trip. At present the company will use three steamers monthly, but proposes soon to increase this number to one a week. Some of

these steamers will sail via the Panama Canal and others through the Strait of Magellan. The Swedish steamer *Pedro Christophersen* also recently arrived at Valparaiso from Rio de Janeiro. This is the first trip made by a Swedish steamer between Brazilian and Chilean ports.——Congress has passed a law authorizing the erection by popular subscription of a MONUMENT in the city of Santiago in honor of Gen. Juan Mackenna.——The committee for foreign affairs of the senate has approved the ARBITRATION TREATY concluded between Chile and the United States by the plenipotentiaries of the two countries, His Excellency Eduardo Suárez Mujica, ambassador of Chile, and Hon. William J. Bryan, Secretary of State of the United States. The committee closes its report with the statement that it has no objections to make to any of the clauses of the treaty, and that the treaty merits approval in every respect.——The RAILWAY BUDGET for 1915, approved by the mixed budget committee, amounts to 63,250,000 pesos.——A decree of the minister of foreign relations, sanctioned by the President of the Republic, declares as NEUTRAL the waters which touch the coast of Chile for a distance of 3 marine miles counting from the lines of the lowest tides.——The department of industry has submitted a bill to the National Congress for the establishment of a GEOLOGICAL AND MINING INSTITUTE.

COLOMBIA

An executive decree of November 26, 1914, provides that the STANDING ARMY for the current year shall be 6,000 men, the same as for the last fiscal year. ——The President has appointed Dr. Carlos A. Urueta as a member of the ADVISORY COMMITTEE of the ministry of foreign relations, to fill the office held by the late Rafael Uribe-Uribe.——A recent act of the National Congress provides for the construction of a building for the POST AND TELEGRAPH OFFICES in the city of Cali, capital of the Department of the Valle. An executive decree, No. 873, published in the Official Journal (Diario Oficial) of the 15th of September, 1914, specifies the shape, dimensions, value, and other details of the stamped paper and POSTAGE STAMPS for the years of 1915 and 1916. —The National Congress has duly authorized the President to omit or reduce, in the budget for the current year, such APPROPRIATIONS as in his opinion are not absolutely necessary, and also to defer any expenses decreed by Congress not pertaining to the regular service of the administration and of the public debt.——A decree issued by the

interior department of Bolivar orders the closing up of the WIRELESS TELEGRAPH station of Cartagena for such time as the European War may last.——In the District of Calarca, Department of Caldas, a NEW TOWN is being built which will be called Barcelona. The blocks or squares will measure 300 feet square; the streets will be 45 feet wide.——An act recently passed by the National Congress provides for the celebration of the first CENTENNIAL of the siege of Cartagena (1815–1915), and also provides for the establishing of a trade school in that city.— In 1914 the CONGRESS, among other laws, enacted law No. 71, which authorizes the canalization of the Magdalena River and of the Loba and Mompos Branches, for which purpose the Government will enter into contracts with two engineers, who are to go to Colombia in order to make the necessary studies, draw up plans and make the proper estimate of the expenses; law No. 72, which provides for the creation, at the capital of the Republic, of a central bacteriological institute which will be devoted to the teaching of bacteriology, the preparation of serum and vaccine to prevent contagious diseases which are now treated by means of serum therapy, and the manufacture of serum to prevent cattle diseases. An appropriation of $30,000 has been made for its establishment and another of $20,000 for its maintenance, and the Government has been authorized to make a contract with a competent foreign bacteriologist to take charge of the management of the institution. Law No. 73 authorizes the approval of a protocol signed at Bogota on November 6, 1914, by the minister of foreign relations of Colombia and the chargé d'affaires of France at Bogota; law No. 74 authorizes the completion of the road leading from the city of Pasto to Puerto Asis, on the Putumayo River; while law No. 75 provides that whenever the Government shall deem it advisable it may annul the contract made with the Pacific Steam Navigation Co. for carrying the mails between Pacific ports of Colombia, and authorizes it to enter into a new contract under more favorable terms for the Republic, for which purpose it shall advertise for bids for a term of four months, during which all the details shall be published both in the Republic and abroad.

COSTA RICA

La Veloce Line of Italian STEAMERS proposes to establish a rapid freight and passenger service between port Limon, Barcelona, and Genoa, giving particular attention to the transportation of coffee to

Mediterranean ports.——A recent executive decree provides that notes and contracts shall be written on STAMPED PAPER, a failure to comply with this requisite rendering them void. The stamped paper used is divided into four classes, namely, paper of 0.10 colon for sums not exceeding 100 colones, paper of 0.25 colon for amounts exceeding 100 and up to 500 colones, paper of 0.50 colones for obligations of from 500 to 1,000 colones, and paper of 1 colon for sums in excess of 1,000 colones. Theater, circus tickets, etc., are subject to a stamp tax of 5 centimes for each 50 centimes of value. Imported cigarettes and cigars must also pay a stamp tax.——An export duty of $0.05, American gold, per kilo has been placed on exports of COFFEE, coffee in parchment being subject to a reduction of 18 per cent.——The Government has suspended the issuance of concessions for the exploitation of NATIONAL FORESTS until rules and regulations governing such exploitation have been prepared and put in force.——The International Bank of Costa Rica has been authorized to issue 1,100,000 colones in BANK NOTES.——The municipality of San Jose has borrowed 150,000 colones from the Anglo-Costarican Bank for PUBLIC IMPROVEMENTS. Under the new law of INHERITANCE estates of a value less than 1,000 colones ($465) are exempt from taxation. The law provides a sliding scale for the taxation of inheritances of from 5,000 to 1,000,000 colones according to the degree of relationship, heirs of the body and consorts paying less than when the heirs are brothers, sisters, nephews, uncles, and aunts, and heirs further removed pay more than either of the classes mentioned.——The Abangares MINING Co. has again commenced the exploitation of its properties on the Pacific coast. The monthly output of these mines when in full operation is said to be about 200,000 colones.——The National PETROLEUM Co. has been organized in San Jose for the purpose of negotiating in New York the sale of oil-bearing lands situated in Talamanca, a region within easy traffic distance of the sea and to the Panama Canal.——It is proposed to connect the city of Heredia with the town of San Antonio de Belen by an electric TRAMWAY, and an American engineer has been appointed to make the survey. This tramway is to be used for hauling passengers and freight, and will open up a new and easy route for shipments of coffee to the Pacific coast through the port of Puntarenas and via the Panama Canal to the United States and Europe.——According to press reports a foreign syndicate is negotiating with the Government of Costa Rica with the object of purchasing a large quantity of public land in the neighborhood of Golfo Dulce, to be used for agricultural purposes.

CUBA

The new ELECTRIC TRAMWAY under construction from Habana to Marianao Beach will be completed early in April of the present year. The line, which is an extension of the Principe Avenue tramway, will open up a new suburban territory of the Federal capital and furnish an easy and rapid means of communication between the city of Habana and the magnificent beach of Marianao. The line will have a double track and will pass through a most picturesque section of the suburbs of the Cuban metropolis.——The Government of Cuba has instructed its health officers to require IMMIGRANTS sailing from Spanish to Cuban ports to be vaccinated before embarking. The instructions apply particularly to the Canary Islands.——A recent message of the President of the Republic recommends that Congress appropriate $50,000 to be used in the REPAIR OF STREETS in the city of Cienfuegos.——Sr. Carlos Armenteros, former minister of Cuba in Peru, has been appointed Cuban minister near the Government of Venezuela, to take the place of the lamented Sr. Cesar Pintó, who recently died at his post in Caracas. The new minister proposes to take active steps in the negotiation of a COMMERCIAL TREATY with Venezuela, under which the commerce of the two countries will be greatly increased, especially in Cuban cigars and tobacco.——Geo. M. Bradt has petitioned the council of the city of Habana for permission to erect a STADIUM in Maceo Park in the Federal capital capable of seating 20,000 people, to be used for athletic tournaments, boxing matches, and other sports popular with American tourists. If permission is obtained, it is proposed to commence the work of construction at once.——The receipts of the UNITED RAILWAYS during the last six months of 1914 amounted to £538,225, as compared with £585,610 during the same period of the previous year.——The National Bank of Cuba has awarded the contract for the minting in Philadelphia of the new coins to be used by the Federal Government.——A meeting of the third MEDICAL CONGRESS was held in Habana from December 2 to 9, 1914. The first session of the Congress was presided over by Dr. A. Agramonte, president, the secretary being Dr. Jose Cubas.——Negotiations are under way between the Governments of Chile and Cuba looking to the concluding of a POSTAL CONVENTION between the two countries.——A recent executive decree annuls a decree issued in 1913 granting steamship companies coming from the Canal Zone a $5 bonus for each LABORER imported into the country.——A bill has been introduced into the Cuban Congress providing for the CODIFICATION of the

laws of the Republic.——President Menocal has signed a decree authorizing the immediate expenditure of $112,000 in the REPAIR OF ROADS in the Provinces of Habana and Pinar del Rio.——The President of Cuba has appointed Henri Hourde, a Belgian subject in the employ of the department of agriculture of the Cuban Government, to visit Holland for the purpose of making arrangements to bring to Cuba BELGIAN FAMILIES who wish to engage in agricultural pursuits.

DOMINICAN REPUBLIC

The CABINET of President Juan I. Jimenez, who was inaugurated on December 5, 1914, is as follows: Elias Brache, jr., secretary of interior and police; Bernardo Pichardo, secretary of state; Licentiate Armando Perez Perdono, secretary of finance and commerce; Licentiate Jacinto B. Peynado, secretary of justice and public instruction; Federico Velazquez, secretary of fomento and communications; Gen. Desiderio Arias, secretary of war and marine; and Jaime Mota, secretary of agriculture and immigration.——A National Committee of OLYMPIC GAMES, with the object of developing physical culture and encouraging healthy sports in the Republic, was organized at the Dominican Lyceum in the City of Santo Domingo on November 25 last. The committee, composed of Vicente Ortiz, Juan B. Alfonseca, and Manuel Flores Cabrera, formulated a program of sports, consisting of regattas, foot races, horse races, lawn tennis, baseball, military drills, etc., to take place during the last four days of February next.——A society of BOY SCOUTS has been organized in the Federal capital by Prof. A. Garcia Obregon.——The MUNICIPAL BUDGET for the City of Santo Domingo for 1915 amounts to $221,815.98.——A corporation entitled "Compañía de Fomento Urbano," with a cash capital of $1,000,000 gold, has been organized in the City of Santo Domingo for the purpose of engaging in the construction of public and private works, such as electric installations, wharves, churches, markets, tramways, railroads, sewers, etc., and for the exploitation of marble, chalk, and other deposits.——An executive decree of November 25, 1914, prohibits the CLEARANCE OF VESSELS from ports of the Republic without the approval of the consular agents of the countries to which the vessels belong.——A recent executive decree grants the POSTAL FRANK to Dominican newspapers.——Manuel de J. Camacho has been appointed CONSUL GENERAL of the Dominican Republic in the city of New York.——

Jose Turull has been awarded a contract for the erection of a BRIDGE over the Ozama River.——The Imperial and Pontifical University of Santo Tomas de Aquino, established and maintained in the City of Santo Domingo for more than two centuries, became a part of the UNIVERSITY OF SANTO DOMINGO on November 29 last.—— An executive decree of November 23, 1914, declares in force the CODE OF EDUCATION prepared by a technical board of experts in 1912.

ECUADOR

The President has issued a decree which provides for the collection of the TAXES on all rum and alcohol which may be found in the country on January 1 of each year. The details of the decree, which is composed of nine articles, were published in full in El Comercio (Quito) of November 22, 1914.——One of the most important utilities in the Province of Machala is the RAILROAD owned by the Concejo Cantonal. Trains run daily between the towns of Machala, Puerto Bolivar, and Pasaje. The road has a length of 28 kilometers, is well managed, and has excellent rolling stock.——Dr. Manuel Cabeza de Vaca has been appointed secretary of the Colombia-Ecuador ARBITRATION TRIBUNAL, recently organized in Quito for the purpose of settling claims of citizens of Colombia.—The Municipal Council of Quito has ordered a new REAL ESTATE CENSUS in order to facilitate the collection of taxes on real property belonging to certain corporate interests.—A new building for the MUNICIPAL LIBRARY AND MUSEUM is being erected in Guayaquil. It is to be of the Renaissance style of architecture and will have a frontage of 48 meters on Pedro Carbo Street and 42 on Municipal Street. While only two stories in height it will have an elevation of 13.5 meters. The floors are to be mosaics on beds of concrete. The main entrance will be 7 meters wide and will be provided with an ample vestibule and wide stairway. The library and museum are to be entirely separated, the section for the former being composed of a reading room for men and a private reading room for ladies, reception room, various rooms for the officials of the institution, and compartments containing the book stacks. The dome over the main entrance is to be decorated with suitable sculptural designs, the principal façade will present an imposing front, and the vestibule will be adorned with statuary. The front of the building will be ornate with pillars and allegorical figures with an arch crowning the cornice and

bearing the name and emblems of the institution. The plans were drawn by Sr. R. M. Pereira, who has been placed in charge of the work by the Municipal Council.——An Ecuadorian citizen by the name of Touzard is said to have invented an apparatus for INCREASING THE LIGHTING POWER of all kinds of lamps including electric-light globes. It is claimed that by means of this attachment the luminosity of a 16-candlepower lamp can be increased to 150-candlepower without increased consumption of current.——The international convention for agricultural protection, signed in Montevideo, Uruguay, May 10, 1913, has been RATIFIED and signed by the President of the Republic of Ecuador.

GUATEMALA

The COFFEE growers and exporters of Guatemala are turning to Spain as one of the neutral countries of Europe most likely to take considerable quantities of the coffee which formerly was exported from the Republic to Hamburg, Bremen, London, and Antwerp. Not only do the Spanish people consume large quantities of coffee, but the free port of Cadiz is one of the most desirable distributing centers of Europe and is the nearest important European port. In 1913 the consumption of coffee in Spain amounted to 15,127,535 kilos, of which only 9,242 kilos came from Guatemala, the remainder having been imported principally from Brazil, Porto Rico, and Venezuela, with smaller quantities from Salvador, Costa Rica, and Nicaragua. The consul general of Guatemala in Madrid states that a company with a large capital is being organized in that city and in Cadiz for the purpose of importing Central American products, and especially coffee. This company proposes to use the free port of Cadiz as a storage and distributing center in its international trade. Coffee imported into Spain for consumption in the country pays a duty of 140 pesetas ($27.02) per 100 kilos, but if stored in Cadiz it is subject to transshipment abroad without the payment of duties. C. Risopatron Barros, chargé d'affaires of Chile in the City of Guatemala, has expressed the opinion that now is an opportune time for increasing the shipments of Guatemalan coffee to Chile. The Republic of Chile consumes annually about 70,000,000 quintals of coffee, of which about 20 per cent comes from Guatemala. If adequate transportation facilities are available between Guatemala and Chile, the prospects are very encouraging for an increased exportation of coffee to that country during the present year.——The edition

of the Monthly Bulletin of December, 1914, erroneously stated that Sr. Trumann Gile McGonigal had been appointed consul of Guatemala in Mobile, instead of saying that Sr. Guillermo Valenzuela had been appointed CONSUL of Guatemala in that city to take the place of Sr. McGonigal.——Mr. Lowenthal, a noted Guatemalan artist, has sent a number of his paintings to San Francisco to form a part of the ART EXHIBIT of the Guatemalan Government at the Panama-Pacific International Exposition.——The Government of Guatemala has completed the construction of its building at the Panama-Pacific International Exposition at San Francisco, at a cost of $24,500, the edifice having been built in accordance with plans made by G. A. Lansburgh, architect.——There are 498 miles of foreign-owned RAILWAYS in Guatemala, not including the line which the State is building from San Felipe to Quezaltenango. The telegraph and telephone systems of the Republic cover 6,171 and 794 kilometers, respectively.——The WIRELESS telegraph tower, which is being constructed in the Federal capital, will soon be opened to public use.——An AVIATION SCHOOL has been established in the city of Guatemala.

HAITI

By invitation of the President of the Republic the principal merchants of Port au Prince met at the national capital on December 10 last for the purpose of hearing an exposition of the plans of the Government concerning a number of important measures now agitating the people of Haiti, and particularly in regard to the financial condition of the country and the most appropriate manner of meeting and strengthening the same. The minister of finance made an address to the business men referred to, in which he stated that the President had decided to withdraw the bill submitted to Congress authorizing an issue of bonds, inasmuch as he did not wish to contract any obligations not in harmony with the wishes and desires of the Haitian people, and that in order to render more satisfactory the guarantee of the loan a decree had been promulgated putting into effect a MORATORIUM applicable to the interior debt. The minister then said that, thanks to the exploitation of mines, he would give a solid guarantee to the paper currency of the country, which at that time was depreciated, so that it could be exchanged at par for American gold. Mr. Henry Brisson replied in behalf of the merchants and assured the Government that it could depend upon their cooperation

in every way possible, provided their help was solicited, in carrying to a successful termination the plan for financial reform.——A public amusement company set up and put in operation during the last of December, 1914, a large CARROUSEL in the Campe de Marte Park in the city of Port au Prince. The amusement company in question has done a successful business in the towns of Jacmel, Cayes, and Jeremie.——An executive decree of December 9, 1915, provides for the holding of a special election to choose DEPUTIES to Congress from the Districts of Valliere du Trou and Fort Liberte.

HONDURAS

The Revista Económica of Tegucigalpa publishes an interesting article showing that the FOREIGN TRADE of Honduras increased from $4,401,000 in 1907 to $7,397,000 in 1912. In 1907 this commerce was made up of imports, $2,321,000, and exports, $2,080,000, as compared with imports, $4,317,000, and exports, $3,080,000 in 1912. The imports in 1912 consisted of manufactured articles, raw material, foodstuffs, and livestock, while the principal exports were made up of bananas, ores, coconuts, cattle, and coffee. The United States, Great Britain, Germany, and France, in the order mentioned, were the principal countries participating in this trade. During the last five years the imports have exceeded the exports. This is accounted for by the heavy importation of mining machinery, railway material, and supplies. Honduras possesses great natural wealth, and its commerce has steadily increased during the last five years. —— The MINING LAW of Honduras provides that engineers at the time of surveying mining properties, shall graphically represent on the plan the boundaries they have made and indicate the principal objects and points in connection with the property. The decree, in Spanish, consisting of 13 articles, was published in the August, 1914, number of the Revista Económica.——In 1914 the department of Intubucá had 50 PUBLIC SCHOOLS, namely, 27 for boys, 21 for girls, and 2 for both sexes. The number of pupils matriculating during that year was 2,044, or 592 more than in 1913.——Two schools in which instruction is given to girls in the WEAVING OF STRAW HATS have been established in the departments of Yaramanguila and Intubucá.——At a recent meeting of the BOARD OF TRADE of Honduras in Tegucigalpa a resolution was adopted providing for the purchase of provisions and other necessary supplies in as large quantities as possible for distribution among the poor in such manner

as may be deemed advisable.——The receipts of the NATIONAL RAILWAY for 1912 and 1913 amounted to 1,520,649 pesos. During this period there was a notable betterment in the service of trains, the roadbed was improved, additional rolling stock added, and a considerable increase in freight and passenger traffic was noted.——The Federal Government has granted to Enrique de Montis a MINING ZONE of 1,000 hectares, situated in the districts of Reitoca and Curaren, department of Tegucigalpa. The concessionaire proposes to actively work the mines now opened in this zone and to carefully prospect the property in search of new mines.——A shipment of 7,000 sacks of Indian CORN was recently imported by the Government of Honduras through the port of Amapala with the object of supplying the retail market of that section of the Republic with this cereal and decreasing the price of maize to the poor.——The proposed STAMP LAW of Honduras requires that contracts, invoices, receipts, and all kinds of documents representing values which exceed 10 pesos shall bear revenue stamps varying in amount in accordance with a fixed table of values.

MEXICO

A bill has been introduced into the legislature of the State of Hidalgo for the PROTECTION OF LABORERS. The bill states that owners or persons employing workmen are, in addition to the criminal responsibility which they may incur in case of accident, liable civilly for harm which their laborers may suffer. The employer is exempt from responsibility when he can prove that the harm has occurred through the fault or negligence of the laborer or of some third person. In case of poverty on the part of the complainants, the judge may authorize them to use stamps of five centavos denomination without complying in this respect with the provisions of the code of civil procedure.——On recommendation of the department of public instruction a SUBSIDY of 50 pesos per month has been granted to the Antonio Alzate SCIENTIFIC SOCIETY whose headquarters are in the Federal Capital.——Charles P. Martin has petitioned the department of fomento for a CONCESSION to use the waters of the Santiago River at the Juanacatlan waterfall, State of Jalisco, for motive power. A similar request has been made by Ernest Jacobs to use the waters of the San Baltazar or Cantarranas River in the State of Puebla for generating electric power.——The CHICK PEA is one of the most important agricultural crops of

Mexico, the State of Sonora, in 1913, having produced 225,000 sacks of 100 kilos each. The central states of the Republic, namely, Jalisco, Michoacan, Guanajuato and Queretaro are large producers of this legume, although there has been a falling off in the yield during the last few years because smaller areas have been planted than formerly. In normal times large quantities of chick peas are exported to Spain, and some to Cuba, Porto Rico, Central America, and Argentina. The peas shipped to New York are largely reexported to other countries. This legume is shipped in jute sacks made in Orizaba and Cuautitlan. Formerly jute sacks for this purpose were imported, but the Government encouraged the manufacture of this article in the country and the home product is now sufficient to supply the demand.——The FLOUR mills and dealers of the Federal capital have made an agreement not to pay more than 30 pesos for each 161 kilos of wheat, or 18.62 pesos per carga of 100 kilos, net weight, aboard trains in the different railway stations in the City of Mexico. They have also come to an understanding by which they will sell wheat flour at 30 centavos per kilo, grain wheat at 20 to 25 centavos per kilo, according to quantity and quality, and bran at 8 centavos per kilo, net weight. This action was taken on the part of the millers and dealers for the purpose of reducing the price of bread.——An order has been issued allowing the free importation of WHEAT into the Republic until May 31, 1915.——A WIRELESS telegraph station has recently been installed at the port of Sonora. The station can communicate with San Jose del Cabo and Santa Rosalia, Lower California. It is planned to erect a number of smaller stations in Lower California and the State of Sonora to communicate with the large station at Guaymas.——A decree has been promulgated exempting MORTGAGE BANKS operating under federal concessions for obligations to redeem bonds issued or to pay premium or interest due on them during the year 1915. The mortgage banks are prohibited from demanding from their debtors the penal interests that may fall due during the same period.

NICARAGUA

On December 28, 1914, the centenary of the UNIVERSITY OF LEON was celebrated in the city of Leon with appropriate ceremonies. Senator Francisco Aguilar, representing the College of Law, gave a historical sketch of the university, a solemn te deum was sung in the Cathedral of Leon in which Bishop Pereira y Castellon offi-

ciated, and addresses were made in University Hall by Drs. Paniagua and Pallais. A marble slab bearing the following inscription was placed over the door of the University: "Aquí se estableció la Universidad de León en 1814, creada por Real decreto del 1º de enero de 1812. Fué promotor de ese centro el Presbítero Rafael Ayestas. Sic itur ad astra. Acuerdo municipal de 1914." [The University of Leon was established here in 1814, created by royal decree of January 1, 1812. The promoter was Father Rafael Ayestas. "Sic itur ad astra." Municipal resolution of 1914.] The Central American Republics were represented in the celebration by the following persons: Nicaragua, Dr. Maximo H. Zepeda; Costa Rica, Dr. J. C. Gasteazoro; and Guatemala, Honduras, and Salvador by their respective ministers. The outdoor celebrations were in the nature of baseball games and music in the parks.——Administrative circular No. 45, recently issued by the collector general of customs, states that silver or nickel plated BRASS MANUFACTURES must pay duty as per section 427 of the tariff law of 1908, even when used as funeral adornments. Plumes and other similar articles used as funeral adornments pay duty in accordance with section 1611 of the tariff law of 1908. The circular further states that in ports where the tariff law of 1902 is in force, the articles referred to shall pay duty in accordance with the provisions of the respective sections of the law of 1908.——A new DIRECT TAX law has been passed by Congress. Under this law there is established for the term of two years only, a tax on all kinds of property or business located in the Republic, whether the owners be citizens or foreigners, natives or naturalized, and even though they may not reside in the country. Property belonging to municipalities, churches and charitable organizations is exempt from the payment of the tax. The tax is assessed on net capital, is annual and is levied at the rate of $5 per thousand payable in advance every quarter. Capital of less than 3,000 cordobas in value is exempt from the payment of the tax. The law became operative on January 1 of the present year.

PANAMA

The TELEPHONE line between Tablas and the port of Mensabé, a distance of 14 kilometers, was opened to public service on December 10 last. Work has also been commenced on a telephone line between Atalaya and Ponuga.——The Official Gazette of November 25, 1914, contains the full text in Spanish of decrees Nos. 51 to 55, inclusive,

promulgated on November 14 of the same year, amending and adding to the SANITARY RULES and regulations which apply to the cities of Panama and Colon.——On November 26 of last year the Panama BOY SCOUTS pavilion in the Federal capital was officially dedicated. J. M. Villamil is president of the organization.——An executive decree of October 30, 1914, contains rules and regulations governing the construction of PRIVATE TELEPHONE and telegraph lines. Permission must be obtained from the department of interior and justice before beginning work on lines of this kind.——A recent law limits the WORKING HOURS of laborers and commercial employees to eight hours a day. This law applies to laborers, artisans, and employees engaged in the construction of public works. No one is obliged to labor on Sundays, but work may be performed on that day under special agreements of the parties in interest. The law provides that commercial establishments shall grant daily to their employees at least 12 hours of rest in addition to 2 hours to which they are entitled during the middle of the day. Buying and selling in stores, bazaars, and commercial establishments are prohibited on Sundays and on week days from 9 p. m. to 5 a. m.——An interesting report of the office of the BOARD OF HEALTH in the city of Colon for 1914 shows that great progress has been made during the past year in the sanitation of the city. The old Pacific Mail Dock and the Panama Railway Dock No. 1 were condemned and demolished to prevent rat infestation. The freight house and platform of the Panama Railway were provided with concrete floors and made rat-proof. There was a general cleaning up of premises and buildings along the water front, and the Old Hamburg American building was condemned. At Folks River water front a long concrete sea wall was built and curbing and sidewalks constructed. The sewer system at Colon Beach was improved, and measures were taken to prevent the breeding of flies in the city. Vacant lots were cleaned of refuse, and low places were filled in to prevent stagnant water. The report shows that at the beginning of the present year there were no cases of malarial fever on the Isthmus. ——The Venado coconut plantation on the Pacific coast about 4 miles from Balboa is also engaged in TRUCK GARDENING. The most improved methods and machinery are used, and the operations have been very successful, good markets being found in the cities of Panama and Balboa for all produce. The plantation borders on the beach and has a harbor with 15 feet of water at low tide. The soil is a black loam, very productive and easily worked. Beans, peas, maize, potatoes, cantaloupes, etc., are grown between the rows of coconut trees. The plantation, which is well tilled and very neat in appearance, is under the management of C. M. Brown.

PARAGUAY

The budget of the Government of Paraguay for the present year provides for the erection of HOSPITALS in the cities of Concepcion, Villarica, and Pilar, but construction work on the buildings has been temporarily postponed because of the abnormal economic condition of the country brought about by the European war.——The fine quality of Paraguayan ORANGES has long been known in Argentina, Brazil, and Uruguay, and there seems little doubt that this fruit, under favorable transportation conditions, could be exported to the United States and Europe at a profit. The Paraguayan orange groves are free from disease, and are heavy bearers of choice fruit of good appearance and flavor. This fruit, if carefully selected and packed, would reach oversea markets in excellent condition, and its attractiveness and flavor would soon make it one of the most popular and sought-for products obtainable in the markets of the world.—— The Herrera-Vega COLONY, which is situated on the upper Parana River in the Department of Encarnacion has good ports and is in daily communication by steamer with Encarnacion, the voyage down stream consuming three hours. The *Esparta*, a small boat which makes regular trips between Encarnacion and the colony, charges 2 pesos (Argentine currency) for the trip up the river and 1.50 pesos for the trip down the river. The freight rates on this boat are also considerably less than those heretofore charged by other river steamers. The colony is divided into well-watered lots of 10 and 20 hectares each. Orange groves have been set out in this colony, and the soil, which is exceedingly fertile, produces sugar cane, bananas, Paraguayan tea, coffee, cotton, and tropical fruits.——The consul general of Paraguay in Madrid reports to his Government that TOBACCO manufacturers in Spain, who formerly obtained a supply of Paraguayan tobacco from Bremen, propose to import tobacco direct from Paraguay. Paraguayan hides, which are used to such a large extent in Barcelona, Valencia, and Coruna, will also be imported directly. The cultivation of RICE has increased to such an extent in the Republic of Paraguay that a factory for hulling and polishing the grain has been established at Asuncion. The factory has a capacity of 3,000 kilos of rice daily. President Schaerer has appointed the noted jurist and diplomat Dr. Cecelio Baez a member of the SUPREME COURT of the Republic. Two other members were appointed at the same time, namely, Dr. Felix Pavia, and Dr. Manuel Burgos. All of these nominations have been confirmed by the Senate.——The PORT WORKS in course of construction at Con-

cepcion are to cost 1,700,000 pesos, 800,000 pesos of which have already been expended.——A WIRELESS telegraph station is being erected at Concepcion. The installation, which will be completed in a short time, will place this part of Paraguay in wireless communication with Asuncion and other parts of the Republic.
The RAILWAY line from Concepcion to Asuncion is to have a double track, 60 kilometers of which have already been completed. ——The use of PARAGUAYAN TEA has been introduced among the English soldiers engaged in the European conflict, and so great has been the demand for yerba mate that the stock on hand in England has been depleted.

PERU

Col. M. David Flores has been authorized by the Government of Peru to exploit for a period of four years the GUANO deposits on Government lands from Huacho to Punto Talara in the northern part of the Republic, and from San Ganan to Morro de Sama in the southern part. The guano taken from these deposits must not be exported and is only available for use in Peru in encouraging and developing the natural resources of the country. This guano will be sold at prices based on its nitrogen and phosphoric-acid contents, the concessionaire being obligated to pay all taxes imposed on the product by laws in force at the present time. Mr. Flores is empowered to form a company to exploit the deposits if he so desires, but in such case the by-laws of the company must be approved beforehand by the Government of Peru. —The Government of Peru has appropriated £6,000 to be used in the Department of Apurimac in the extermination of LOCUSTS.——A recent executive decree provides that in order for a TRADE-MARK or label to be entitled to national registry, a part of the inscriptions or legends must be in Spanish and the name and address of the factory which uses it must appear thereon.——A TELEGRAPH line has been completed from the port of Ilo to the wireless telegraph station established near that port in July of last year.—A NIGHT SCHOOL for machinists has been opened at Iquitos under the direction of Prof. Abelardo Colmenares. The provincial board of Lima has been authorized by Congress to contract for the sewering of the new Victoria ward (barrio) on the road to Chorrillos, a suburb of the Federal capital, as well as for the canalization of the Santa Beatriz Aqueduct. The property owners benefited by these improvements, in proportion

to their holdings, are to be assessed £25,000 toward the cost of the work.——A contract has been made with Arturo Pitaluga to change the existing horse TRAMWAY, which runs from the port to the towns of Huacho and Huaura, to an overhead trolley line. The tramway is to be put in thorough repair and the motive power changed on the old line within a period of 20 months. The contract also calls for an extension of the tramway line. The headquarters of the contractor is to be at Huacho.——A recent executive decree provides that the MORATORIUM of October 13, 1914, shall terminate on August 22, 1915.

SALVADOR

In the 10 years from 1904 to 1913, inclusive, the population of Salvador increased 20.4 per cent and the FOREIGN COMMERCE 62.1 per cent. During this period imports increased 71.8 per cent and exports 41.8 per cent. Coffee, which in 1904 made up 87.2 per cent of the exports, in 1913 represented 79.6 per cent. In normal times the coffee of Salvador is shipped principally to Germany, United States, Italy, Great Britain, and France, the more recent markets being Denmark, Spain, Sweden, and Norway. In 1913 the proportion of the exports of Salvador which went to the different countries was as follows: United States, 28.4 per cent; France, 20.4; Germany, 17.1; Italy, 12.1; Great Britain, 7.1; Austria-Hungary, 5; Sweden, 2.8; Norway, 2.6; and other countries, 4.5 per cent. The percentage of imports into Salvador in 1913, according to a statement published in the Diario del Salvador, was as follows: United States, 49 per cent; United Kingdom, 27; Germany, 10; and other countries, 14 per cent.——An export tax of 20 cents gold per kilo, gross weight, has been placed on exports of INDIGO until September 30, 1915.——The Government of Salvador has authorized the mintage of 1,000,000 pesos in small denominations of SILVER COINS.——The INTERNATIONAL CLUB of Salvador has elected the following officers for 1915: Andres Bang, president; Salvador Mugdan and Federico Klein, vice presidents; Ricardo Sagregra, secretary; and George Harrison, treasurer.——From 1904 to 1913, inclusive, the exports of gold and silver BULLION amounted to 29,319,398 pesos. The annual exports of these precious metals during the period referred to varied from 2,000,000 to 3,700,000 pesos. Most of this bullion was shipped to the United States.——Búcaro and Avila have petitioned the Government of Salvador for

permission to build and operate an ELECTRIC TRAMWAY between Soyapango and Ceiba del Guarumal.——The COFFEE growers and exporters of Salvador are investigating the Republic of Cuba as a probable market for Salvadoran coffee. In 1913 Cuba consumed coffee valued at $1,754,800, about two-thirds of which came from Porto Rico. As transportation facilities between Salvador and Cuba are good, it is hoped that a market will be found on the island for a considerable quantity of coffee from Salvador.——The WHARFAGE CHARGES at La Union on rice, maize, and other cereals imported through that port have been reduced 50 per cent.——The WATERWORKS which were recently installed at Olocuitla are of sufficient capacity to furnish that town with an abundant supply of an excellent quality of potable water.——The Government of Salvador has taken active steps toward the extermination of the GRASSHOPPER pest with which some parts of the Republic have been threatened.——The Ericsson Telegraph & Telephone Co., of Mexico, is negotiating with the Federal Government concerning the installation of an underground telephone system in the city of San Salvador.

URUGUAY

Dr. Justino Jimenez de Aréchaga, the new minister of the DEPARTMENT OF INDUSTRIES, entered upon the discharge of the duties of his office in December last.——The President of the Republic has submitted a special message and bill to Congress recommending the appropriation of $50,000 for the purchase of machinery, supplies, and stock for the use of COLONISTS.——The French Government has placed a large order for READY-MADE CLOTHING, woolen fabrics, etc., for the army, with a Montevideo firm.——Dr. Juan Carlos Blanco, minister of public works of the Government of Uruguay, has been appointed minister plenipotentiary and envoy extraordinary on a special mission near the Government of the United States. Dr. Blanco will represent the Uruguayan Government in the official inauguration of the Panama Canal and of the San Francisco Exposition. He is accompanied by his secretaries, Enrique E. Buero and Carlos Garcao Marquez. Dr. Blanco has been actively in public life since 1904, has held many important public offices, and is a statesman and author of more than local reputation.——The city of Montevideo is constructing a modern plant for the destruction of garbage and REFUSE. The plant will be installed at an estimated

cost of $500,000.——The President of the Republic has submitted a bill to the General Assembly providing for the PAVING with asphalt of that part of Montevideo known as Punta del Este.——The narrow-gauge line which connects the station of Pan de Azucar with Puerto del Ingles, of the RAILWAY between Montevideo and Piriapolis, has been opened to public traffic.——The Government of Uruguay has obtained by purchase the branch line of the PAN AMERICAN RAILWAY which runs from Trinidad to Durazno.——On the first of the present year the new LIGHTHOUSE at La Panela was opened to public service. This lighthouse will greatly facilitate the navigation of the estuary of the River Plate.——Eduardo Perotti Corradi, the representative of the executive committee of the BOY SCOUTS of Uruguay at the San Francisco Exposition, has been commissioned to go to Guatemala to receive the flag which President Estrada Cabrera proposes to give to that organization.—— A bill has been submitted to the Congress of Uruguay by President Jose Batlle y Ordoñez providing for the payment of INDEMNITIES by employers to employees not under contract who are discharged because of their nationality.——The Government of Uruguay has taken steps looking to the purchase from the heirs of Prof. Arechavaleta of a valuable LIBRARY AND HERBARIUM. The herbarium consisting of thousands of Uruguayan plants is to become a part of the National Museum of Montevideo.——A bill has been introduced into the Congress of Uruguay imposing a tax on foreign RACE HORSES not imported for breeding purposes.—— The city of Paysandu has granted a concession for the construction of an ELECTRIC TRAMWAY.

VENEZUELA

At the First Medical Congress of Venezuela, which was held in Caracas during the centenary of independence of the Republic, Maracaibo was chosen as the place in which to hold the SECOND VENEZUELAN MEDICAL CONGRESS, the sessions of which commenced on December 10, 1914, and closed on December 15. The organizing committee of the Congress, of which Dr. Francisco E. Bustamante was chairman, appointed 21 vice-chairmen—one from the Federal District and one from each of the different States—who during the last two years have been actively engaged in preparing the preliminary work of the Congress. The principal discussions and reports of the sessions were devoted to the following

subjects: Leprosy, tetanus, alcoholism, and dysentery.——A recent ruling of the department of Fomento requires that persons or firms entitled, under Government concessions, to import merchandise FREE OF DUTY for industrial purposes shall, in order to avail themselves of this privilege, advise in advance the department of Fomento as to the class and kind of merchandise expected and, if possible, the ship on which it will arrive, and otherwise comply with the provisions of articles 179 and 180, law XII, of the Treasury Code.——During the first half of last year 19,065 persons entered the Republic of Venezuela, and 17,419 departed from the country. The travel from oversea consisted of 5,872 entrances and 5,862 departures.——The Government of Venezuela has recently issued MINING titles to John Gathmann, covering the Campo Solo copper mine, and to John C. Prince, covering the San Geronimo copper mine, both situated in the municipality of Aroa, district of Bolivar, State of Yaracuy.——During the first half of 1914 there were registered in the branch land offices of the Republic, not including the Territory of Amazonas for which no report has been received, 18,322 TRANSFERS OF LAND valued at 57,754,400 bolivares, on which registration fees were paid to the amount of 241,006 bolivares.——Alejandro Fernández Garcia has been appointed CONSUL of Venezuela at Genoa, Italy, and Luciano de Landaburu consul ad honorem at Bilbao, Spain. Ad honorem consulates have been established at Rome, Italy, and Coblentz, Germany, in charge of Dr. E. Rossi and R. M. Alberti, respectively.——The committee for the REVISION OF SPECIAL LAWS, which was reorganized in Caracas under an executive decree of November 14 last, is composed of the following members: Drs. Carlos Urrutia, G. T. Villegas Pulido, C. Jimenez Rebolledo, P. Hermoso Tellería, Lorenzo Herrera Mendoza, and Ernesto Urbaneja Arismendi. The committee is divided into two subcommittees, Dr. Carlos Urrutia being chairman of the first subcommittee and Dr. P. Hermoso Tellería of the second committee.——All kinds of documents and writings in Venezuela which relate to values are required to be stamped as follows: Values of from 25 to 50 bolivares, 5 centimes; from 51 to 100 bolivares, 10 centimes; from 101 to 200 bolivares, 20 centimes; from 201 to 300 bolivares, 30 centimes; from 301 to 400 bolivares, 40 centimes; from 401 to 500 bolivares, 50 centimes; from 501 to 1,000 bolivares, 1 bolivar, and in excess of 1,000 bolivares one bolivar more for each 1,000 bolivares or fraction thereof.